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AUTHOR – AUTEUR

Full Name of Author – Nom complet de l'auteur

SHIRLEY JANE LISTER-PIERCY

Date of Birth – Date de naissance
JUNE 14/57

Canadian Citizen – Citoyen canadien
[X] Yes / Oui [ ] No / Non

Country of Birth – Lieu de naissance
CANADA

Permanent Address – Résidence fixe
6502-112 A STREET
EDMONTON ALBERTA
T6H 4R3

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University – Université
UNIVERSITY OF ALBERTA

Name of Supervisor – Nom du directeur de thèse
DR. JANE WATKINSON

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A PROCESS OF THE INTEGRATION OF MENTALLY HANDICAPPED STUDENTS INTO COMMUNITY LEARN-TO-SWIM PROGRAMS

by

SHIRLEY J. LISTER-PIERCY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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PERMANENT ADDRESS:

6502 - 112A Street

Edmonton, Alberta

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DATED 30th August 1985

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled A PROCESS OF THE INTEGRATION OF MENTALLY HANDICAPPED STUDENTS INTO COMMUNITY LEARN-TO-SWIM PROGRAMS

submitted by SHIRLEY J. LISTER-PIERCY

in partial fulfillment of the requirements for the degree of Master of Science.

Jane Watkinson
Supervisor

Date 30th August 1985.

ABSTRACT

The purpose of this study was to evaluate a process towards integration of mentally handicapped students into community learn-to-swim programs. The process was composed of the following seven phases of instructional intervention:

Phase I Skill acquisition and upgrading

Phase II Skill upgrading and generalization training

(a) to other instructors

(b) to other settings

Phase III Consciously simulated integrated instructional program: with required supports

Phase IV Integrated recreational activity program with known peers/ family

Phase V Integrated instructional program with continuous support

Phase VI Integrated instructional program with minimal support

Phase VII Integrated instructional program with no support

Fourteen moderately handicapped students aged nine to fourteen years participated in this study. Students initially were placed in segregated learn-to-swim programs. Performance levels on swim and social skills were defined as criteria for entry into Phases II through VII. Students were required to meet the preestablished criteria levels on both their swim and social skills before they were permitted to progress to successive phases of the treatment. Success in each phase was determined by continued progress on these skills.

Seven students entered Phase II of the process. They continued

to improve on acquired skills, facilitating progress to Phase III of the process. Phase IV and onward required the support of parents in order for students to participate successfully. Four students, with parental support, entered Phase V of the process. With continued parental support, three of these four students demonstrated continued improvement in their swim and social skills in an integrated swim instruction program.

In order to determine the effects of the program instruction on students' performances a single-subject time-series design was utilized. A changing criterion design, which is a variation of a multiple baseline design, was employed to determine the efficacy of each phase of the process. Evaluation of the seven phase process was based on the degree to which students who were placed in community programs experienced success, as demonstrated through maintenance or an improvement in the swim and social skills they had acquired.

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CHAPTER I

INTRODUCTION

> Whatever the educational situation we should seek to give children the joys and excitement of physical activity and play in some form. We should use this natural childhood activity to give handicapped children as much opportunity as possible for independence and acceptance by other children. (Groves, 1979, p. 3).

Physical education has an important part to play in the development of children's physical, social and emotional growth. In play many early and valuable social experiences take place. Awareness and feelings of self-confidence are closely linked with bodily experiences. Many authors have stressed the value of successful physical experiences in total development (Groves, 1979). Few authors, however, have emphasized the effects of failure in physical activity which can have detrimental long term effects.

Groves (1979) noted that even in an environment where academic prowess was reinforced over and above physical ability, students lacking in physical coordination were rejected not only in games, but in other situations as well. She suggested that even a slight motor impairment could interfere with both learning and personality development. Williamson (1979) suggested that even amongst children who are educationally subnormal, there is a relationship between physical abilities, social acceptance and behavior patterns.

It has been well demonstrated through numerous studies that mentally handicapped children have difficulties in play (Carr, 1970; Watkinson & Wall, 1982). Lacking not only in the prerequisite physical skills they may not understand the rules of play (Keeran

Groves & Zachofsky, 1969; Wall, 1976). This leaves the mentally handicapped child in jeopardy in that he or she does not have the skills required for play, nor the social skills to partake in group activities, which may lead to social rejection from his or her normal peers. Additionally, mentally handicapped children sometimes display unusual social behaviors, or lack simple accepted social skills, causing them to stand out in a peer group, resulting often in ridicule, or isolation from peers.

The answer to this problem is not to withdraw children from play and protect them from possible failure and rejection by others; rather, it becomes increasingly important for teachers and parents to assist mentally handicapped children to improve their social and motor skills so that they may join in activities with other nonhandicapped children. Evidence has demonstrated that physical fitness and motor skills of mentally handicapped children can be improved with effective instruction (Auxter, 1982; Ersing, Loovis & Ryan, 1982; Wall, 1976). Groves (1979) has suggested that those children whose motor skills improve may also demonstrate improvements in social and behavioral skills.

Teachers and specialists must remember, however, that the degree to which handicapped children can eventually participate with nonhandicapped children will vary, depending on the skills of the handicapped individual. One cannot expect integration to be successful for all mentally handicapped students. Some students will lack the physical or social skills required in integrated settings even after programs of intensive instruction. The responsibility of educators then, is to assist students to develop their skills to the best of their

ability. Achievement of these skills will facilitate their entry into integrated activities.

Swimming is an activity which provides an individual with an opportunity for a lifelong recreational outlet with peers and family. It will assist individuals in achieving some degree of physical fitness if engaged in on a regular basis. Initially easy to learn, swimming engenders feelings of success. Opportunities for participation are available in most communities across Canada. Thus, the mentally handicapped can benefit greatly from programs that prepare them to be integrated into this activity.

Hutchison and Lord (1979) have suggested that as people in communities become more aware of the potential for integration of the handicapped, they begin to look for information on how to develop their programs. A model, they suggest, can provide an understanding of the critical elements of the process, to ensure that none is overlooked. They developed a community based model which consisted of the three components: Upgrade, Educate and Participate. The model includes participants, staff, and community members in the integration process.

Arsenault and Wall (1979) have suggested that the main purpose of developing a continuum towards recreation is to assist people who are mentally handicapped to progress step-by-step towards their potential. They suggested that the two main objectives of a program are skill upgrading and activity participation. Arsenault and Wall have also developed a five step continuum for the development of recreational programs. The continuum begins with a specialized program in a specialized facility, and continues through to independent utili-

zation of community programs. With effective instruction in upgrading programs mentally handicapped individuals can improve their performance on instructed skills. However, unless individuals have been taught to generalize acquired skills, the probability of performing these skills in a new setting (for example in a community program) is highly unlikely (Stokes & Baer, 1977; Wehman, Abramson & Norman, 1977). If children are expected to be able to perform acquired skills in other settings, with family and in the presence of nonhandicapped peers, they need first of all to be taught to generalize their skills.

Hill, Wehman and Horst (1980) support this viewpoint and suggest two issues that are important elements of a mentally handicapped person's training towards integration. First, generalization of skills learned in a segregated setting must be trained. Second, regular experiences in the community are an essential part of the instructional process. Consequently, integration models must be developed that include deliberate training for generalization, along with progressive experiences in a normative community setting.

Justification of the Study

Auxter (1982) suggested that adapted physical education could be defined as "that portion of the total physical education program in which adaptations are made for handicapped individuals so that they may successfully participate in sports which can be generalized into community recreation programs" (p.55). Ideally physical educators should focus on the acquisition of culturally normative activities that will facilitate lifetime participation by mentally handicapped individuals. A curriculum of instruction should then be developed to

facilitate skill acquisition/upgrading and generalization training, and systematic introduction to community programs to enable generalization of the acquired activity from segregated physical education settings to community activity.

Swimming has been recognized as a superior activity for developing and maintaining physical fitness, as well as a recreational activity in which any individual can participate throughout life. It has been regarded as an excellent activity to meet the various needs of mentally handicapped individuals (Practical Guide for Teaching the Mentally Retarded to Swim, 1969). Numerous researchers have suggested that in addition to the benefits swimming provides to improve physical fitness, motor development and proficiency, it enables individuals to gain feelings of success and improvement of one's self-confidence (Practical Guide for Teaching the Mentally Retarded to Swim, 1969; Fischman, 1978; Hopkins, 1981; Martin & Nichols, 1979; Martino & Johnson, 1979; Williamson & Hickling, 1978). Swimming is a skill that is initially easy to learn as it does not require learning of game strategies as well as body movements.

Researchers have suggested that, depending on the degree of an individual's mental handicap, it is possible for a mentally handicapped individual to have sufficient physical skills to participate in regular swimming instructional classes. However, inadequate social development, or inability to keep up to the level of one's peers may lead to "feelings of frustration and failure" (Lambert, 1979; Practical Guide for Teaching the Mentally Retarded to Swim, 1969, p.4).

However, through a systematic progression of appropriate instruction, it would seem that integration of some mentally handicapped

students into community learn-to-swim programs is a feasible goal. As Harnett and Boyd (1975) expressed in their writings on the implications of normalization for recreation service, "What is needed is a carefully devised realistic strategy for the integration of mentally handicapped persons into the Canadian way of life" (p. 24). Several researchers, including Arsenault and Wall (1979), Hunter (1981), and Hutchison and Lord (1979), have developed service continuums which focus on a progression towards integration of handicapped individuals into the community. These models have generally been developed for usage by communities or agencies to promote recreation integration. Hill, Wehman and Horst (1980) and Auxter (1982) have suggested that adapted physical education programs should focus on the development of skills for handicapped individuals to facilitate their participation in community recreational programs.

It therefore seemed ideal to integrate the ideas of Auxter and Hill, Wehman and Horst with the important steps that other researchers have developed for community integration. These ideas were used to develop a process that begins with skill development in adapted physical activity classes and continues training towards self-sufficient recreational and instructional community participation. Utilizing swimming as the skill through which to evaluate a process towards integration, the following seven phases were developed and tested illustrating a systematic process towards integration:

1. Skill acquisition and upgrading
2. Skill upgrading and generalization training
   (a) to other instructors
   (b) to other settings

3. Consciously simulated integrated instructional program: with required supports
4. Integrated instructional program with known peers/family
5. Integrated instructional program with continuous support
6. Integrated instructional program with minimal support
7. Integrated instructional program with no support

Purpose of the Study

The purpose of this study then was to develop and evaluate a process towards integration into community learn-to-swim programs that is based on a combination of skill upgrading, generalization training, and systematic introduction to community swim programs. This process followed a sequence of phases, each one bringing a student closer towards self-sufficient integration.

Progress through the phases was dependent upon students' ability to generalize their acquired swim and social skills in coping with the demands in a pool environment. In order for students to progress successfully through subsequent phases, they were required to reach a certain degree of competence in both swim and social skills. Criteria were established as requirements for entry into each phase of the process. Success in each phase was determined by continued progress on these skills.

In order to evaluate the success of this process towards integration the following questions were answered:

1. Can minimal competencies in swim and social skills be described as criteria for entrance into each phase of the process?

2. Did subjects with required swim and social skills progress satisfactorily through successive phases? Satisfactory progress was operationally defined as continued skill maintenance in the new instructional phase
3. Did progress through this process result in successful integration into community learn-to-swim programs?

Delimitations

The task analysis instructional model of swimming skills was developed for and piloted with moderately mentally handicapped students. Thus, the scope of this program was set to include moderately handicapped students aged nine to fourteen years.

Curriculum instructional materials were limited to ten target skills. These ten skills represented a hierarchy of skills which are acquired progressively as students gain confidence and skill in the water. Students progressed through the hierarchy of skills at their own rate. The diversity of skill levels facilitated evaluation of different phases of the model simultaneously, as there was much diversity in the rate of acquisition of swim and social skills.

Social skills were defined within the following categories: (a) behavior skills, (b) social skills, (c) self-help skills, and (d) safety skills.

A behavioral checklist was designed to evaluate the social functioning level of a child in a pool environment. The behaviors were defined as essential for adequate independent performance in a pool environment.

Instructors in the program were certified swim instructors or,

at least, proficient swimmers themselves. Regardless of previous certification, all received training prior to working with the students. This included specific training in instructional techniques and recording procedures to be used in the program.

Limitations

There were a number of factors which may have impeded or affected the accomplishment of the goals of the program.

First, the study's generalizability may be limited since the subjects of the study were not randomly sampled. They represented an intact group of students (N = 14) from one school in Edmonton. However, in terms of characteristics relevant to this study (i.e., motor development, physical and social maturity, swim skill level), they represented a heterogeneous group of mentally handicapped individuals, facilitating evaluation of the process for individuals with a diversity of skill levels and abilities. In other words, in spite of the method of selection, the subjects of the study appeared to be a representative sample of the population of school-aged moderately handicapped students.

The single subject design selected allowed for a small sample of students (N = 1 x 14). However, absences of some students did not permit consistent data on all subjects. This was a minor problem for most of the students. It was, however, a major problem for one student who was in Italy with her parents for over half of the instructional sessions, resulting in her remaining in Phase I throughout the program.

It was anticipated the majority of social behaviors required in

a pool environment were captured through a social skill competency checklist. However, some overt skills may have been missed, as they are difficult to operationally define.

Although the majority of instruction (Phases I to III) was over a short period of time (two months), history, or extraneous events may affect the validity of the study. The experimenter was aware of any major events which took place in students' lives outside of the program (such as deaths, sicknesses, etc.), which might have affected their performances, although no specific records were kept of these. Thus variations in students' performance could have occurred which were not the result of treatment.

The major limitation of the study occurred once a student progressed to Phase IV of the process. From this point in time parental support was required. A significant number of students were unable to continue their participation in the program due to lack of parental support.

CHAPTER II

REVIEW OF THE LITERATURE

The Integration of Mentally Handicapped Individuals into Recreational Activities

The integration of handicapped individuals into the community has become a controversial educational issue in recent years. Physical activity is an excellent medium for promoting integration, as it offers many opportunities for social interaction through group activity while at school and in extracurricular activities. Wolfensberger (1972) described integration as taking two forms: physical and social. Physical integration occurs when a handicapped person is placed in an integrated setting that is conducive to social interaction. When social interactions between handicapped and nonhandicapped individuals occur at a personal level, social integration has taken place.

Wolfensberger (1972) stated that if integration is to be the means for development of social interactions between handicapped and nonhandicapped individuals, it must occur at a social level. In order for integration to occur at a social level, it must be carefully planned through a systematic action plan.

Recent national legislation in the United States and some provinces in Canada requires that every child be provided with an appropriate education, including physical education, in the least restrictive environment. Even where legislation is absent, through increased public awareness, pressure has been placed on education systems to create many integrated programs for persons with all types of dis-

abilities, in school and community programs (Broadhead & Brunt, 1982; Roice, 1982).

Williamson (1979) suggests that integration may be considered in three stages, which include: (a) contact (coming together); (b) involvement (a formal game or activity), and ultimately, (c) interaction (a spontaneous, shared, recreational activity) (p. 138). He suggests that physical activities provide an ideal opportunity for the contact phase. Activity initiates the contact which, once underway, can lead to direct involvement. Mutually shared activity may lead to interaction, where handicapped and nonhandicapped individuals may be able to forget about individual differences and interact on a personal basis. As a consequence, less adult support is needed and integration may become "less self-conscious" (Williamson, 1979, p. 138).

However, if a student is lacking adequate social or physical skills, the degree of integration may not progress beyond the contact stage. A student lacking adequate skills may not be able to participate in a game, or he may display inappropriate social behaviors, or have a limited concentration span to learn skills. This performance may not be tolerated by nonhandicapped peers which may result in ridicule or social isolation. For these reasons, training in both physical and social skills prior to contact is needed for successful integration of handicapped individuals. However, as Williamson (1979) reminds us, the degree of integration achieved by people will vary, depending upon their physical and social skill levels.

Wehman and Hill (1980) suggest that with adequate training integration of even profoundly handicapped individuals is possible,

but that it is a process that must be carried out systematically. They have emphatically stated their beliefs about integration through the following statement:

> It is our position that segregation of severely and profoundly handicapped from nonhandicapped peers greatly reduces personal growth and development in even the most handicapped of these individuals. Furthermore we believe that instructional preparation is necessary for movement into less restrictive environments, and must be carried out systematically. (p. 2)

Hunter (1981) would agree with Wehman and Hill in that she suggests successful integration requires instructional preparation through a systematic process. Hunter echoes Ben Sweetland's statement that "Success is not a destination. It is a journey," to suggest that:

> The process of leisure education in the life of an individual is a journey of personal discovery . . . Satisfaction with one's leisure lifestyle is a gradual and learned process, culminating in a style of life reflective of the individual's needs, value and personal interests. For an individual with a disability both internal and external factors may influence the leisure lifestyling process. In our role as leisure service providers, active consumers, or advocates of individuals with disabilities, we can facilitate the development of leisure education and secure its role in the recreation integration process. (p. 77)

Hunter suggests that merely opening existing services to people with special needs would not guarantee or encourage their involvement. Her approach would suggest that an individualized process is needed, wherein attention to individual needs, interests and skill levels would be stressed. For individuals going from a segregated or institutional setting to a community setting, additional support systems would be needed for them to be successfully involved in recreational programs in the community.

Utilizing the above philosophy, Hunter (1981) developed a con-

tinuum of recreation services that provides an increased spectrum of potential participation levels to the individual. This continuum encompasses the following five developmental levels:

1. Institution and home bound one-to-one visitations
2. Developmental skill programming
3. Special interest groups
4. Integration with support, and finally,
5. Integration without support

(Hunter, 1981, p. 78)

The continuum begins with visits by a volunteer to people who are confined to a home or institution. The next step of the process provides segregated developmental skill programs for individuals with special needs who have had little opportunity to develop personal social and physical skills that are a prerequisite to many community leisure experiences. Once individuals have acquired basic skills in an area they may wish to participate with other disabled individuals but not feel ready to be integrated into a regular program. Hunter suggests that the third phase should constitute special interest programs for disabled people. The fourth phase provides support services for individuals participating in integrated programs. Provision of support services such as transportation, volunteers to assist participants, may alleviate many barriers that handicapped people encounter upon entry into integrated programs. Support services are gradually withdrawn where appropriate and possible. For many individuals the continuum offers opportunities to develop physical and social skills that will lead towards independent participation in community activities, which is the final step in the continuum.

A number of other researchers have developed service continuums as well to facilitate the process of integration of handicapped people. Hutchison and Lord (1979) have written several articles and a book focussed on recreation integration. These authors suggest that there are three concurrent steps to the integration process: Upgrade, Educate and Participate (Hutchison and Lord, 1979). The "upgrade" phase aims to assist handicapped people to acquire the necessary physical, social and communication skills to be able to participate in the community recreation settings. The second phase, "Educate," should focus on broadening the attitudes and increasing the awareness of community members. Community instructors, support staff, and nonhandicapped program participants would be included in their definition of community members. The "participate" phase implies the establishment of programmatic steps towards independence into as normative settings as possible. Within the participate phase a continuum of services was developed to include the following progressive phases:

1. Upgrading experiences in institutions
2. Segregated upgrading experiences in associations
3. Segregated upgrading experiences in community settings
4. Homebound and individualized upgrading experiences in the community
5. Integrated experiences in the community with advocacy and support
6. Integrated experiences in the community with little or no advocacy, and finally,
7. Ongoing community involvement

(Hutchison & Lord, 1979, p. 112)

Hutchison and Lord (1979) stress that integration is a process. From a segregated setting the process of physical integration takes place which ultimately, ideally, will facilitate integration at a social level. They suggest that every individual, handicapped or nonhandicapped, can fit into the continuum at any time, at a level appropriate for his or her skill level. Rather than focussing on the handicapped individual, they place an emphasis on the need for education of all those involved. Broadening attitudes and awareness of volunteers, community staff and other participants will determine the success of the integration process.

Stensrud (1978) modified a model of integration developed previously by Spinak in 1975. This model has three phases which include: (a) segregated or specialized services, (b) transitional services, and (c) fully integrated or normative services. Stensrud (1978) suggests that individuals may enter the continuum at a level most appropriate for their developmental level, and that progress through the process is based upon an individual's readiness. She suggests that while some individuals may progress rapidly to the third level, some may stay for years at one stage, while yet others may benefit from a combination of services at various stages of integration.

Stensrud suggests, as do Hunter (1981) and Hutchison and Lord (1979), that integration is a process, achieved at an individual's rate of progress. She has only defined three levels on the continuum whereas authors reviewed previously had developed five or more levels. However, although she only specifies the three levels, she suggests that each stage would encompass a larger degree of development through the process. In agreement with Hutchison and Lord, she suggests that

the goal of recreation integration is for an individual to participate independently in a community recreational program. Hunter alternatively stated that the continuum was not intended to represent a hierarchy of participation levels; rather that participation on the continuum is activity specific and will reflect the needs of each individual (Hunter, 1981).

Arsenault and Wall (1979) suggest that the major purpose of a continuum of services towards recreation integration is to provide a progression of steps that will assist mentally handicapped individuals in the achievement of their potential. In their model Arsenault and Wall describe two program objectives; namely skill acquisition and upgrading, and activity participation (p. 1). They have developed a service continuum for recreation which includes the following phases:

1. Specialized program in a specialized facility
2. Specialized program in a community facility
3. Consciously integrated program with required supports in a community facility.
4. Integrated program with necessary support in a community facility.
5. Independent utilization of community programs

(Arsenault & Wall, 1979)

Arsenault and Wall have suggested that the following information must be taken into account when determining the level of placement for an individual:

1. Age of the participant
2. Interest, experience and awareness of the mentally handicapped person, and

3. Degree of the disability as it affects level of understanding, and degree of manifested behavior problems.

(Arsenault & Wall, 1979, p. 1)

Wehman and Hill (1980) additionally suggest that programming towards integration for mentally handicapped students should include: (a) training in task oriented skills and social skills which can be readily practiced in the community, and (b) early and continued generalization training in natural community settings on a regular basis (Wehman & Hill, 1980, p. 22). The latter point, generalization training in natural community settings, is a component missing in the models previously described. As mentally handicapped individuals may not generalize their acquired skills across environments unless they have received adequate training, it does seem to be an essential step in the process towards integration.

Auxter (1982) focusses primarily on the individual being integrated, as do Wehman and Hill. He suggests that development of physical fitness, sports-skills, and knowledge to play the activity, as well as the knowledge to enable generalization of the activity from Adapted Physical Education classes to community activities are all important to enable a handicapped person to participate in physical activity independently in the community.

The above authors have demonstrated a number of key concepts in the process towards integration. First, they all emphasize that integration is a process which must be developed according to each individual's rate of development. Second, although not specifically stated in the models, all of the above-named researchers state that handicapped individuals must acquire not only the physical skills,

but also appropriate social and communication skills in order to be successful in integrated community activities. Wehman and Hill (1980) and Auxter (1982) additionally state the need for generalization training of skills to facilitate participation in natural environments. Finally, with the exception of Hunter, authors suggest that the final goal for all participants is to be able to participate self-sufficiently in community recreational programs.

Within each model or continuum several progressive steps or phases have been developed which lead from skill upgrading in segregated settings to participation in integrated programs. Specific instructional techniques have been developed and successfully utilized in order to assist students who are mentally handicapped to develop the necessary prerequisite skills for participation in integrated activity programs. In the development of future models of the process of integration, the five components of the process which seem to warrant inclusion would include: skill upgrading, generalization training, training of appropriate social skills, use of transitional programs, and the use of support services. The following sections of the review examine each of these in more detail.

Skill Acquisition and Upgrading

Task analysis, and sequencing of skills have been demonstrated as effective in the instruction of motor skills to individuals who are mentally handicapped. By breaking down skills into hierarchical subskills which are taught sequentially to students, an instructor can develop task sequences to meet individuals' needs, appropriate

for their rate of learning and present skill level (Wall, 1976; Watkinson & Wall, 1982).

Certo, Brown, Belmore and Crowner (1977) suggest a six step strategy for development of task analyses. First, they suggest, an instructor must identify the desired target performance and convert it into observable responses. Second, the criterion responses must be analyzed and divided into a series of less complex responses, arranging those necessary to complete the task into a hierarchical order. The students' ability to perform each response in the hierarchy must then be verified. Students must then be taught to perform each step in the serial order. Finally, in order to determine the efficacy of the task sequence, an instructor should record students' successes and failures during a pilot phase, so that adjustments can be made to the teaching process.

The PREP program, developed at the University of Alberta utilizes a task analysis model of instruction to teach motor skills to young mentally handicapped children (Watkinson & Wall, 1982). The program focusses on the use of a task analysis model of instruction to assist mentally handicapped students to acquire culturally normative skills. In doing so, it is anticipated they may ultimately participate in activities alongside their nonhandicapped peers.

Lambert (1979) and Martin and Nichols (1979) suggest that swimming curriculums for mentally handicapped students should utilize a sequential skill progression which is broken down appropriately for the level of students being instructed. Martin and Nichols (1979) utilized a task analysis model of swim instruction to teach sixty

severely and profoundly mentally handicapped participants basic swimming skills. They felt that more of their students were able to participate and improve skills through the use of this swimming curriculum. "All participants achieved some measureable degree of aquatic skill, and . . . all of these severely and profoundly retarded individuals enjoyed their water experiences" (p. 7).

Generalization Training of Acquired Skills

A Task Analysis model of instruction has been demonstrated to be an effective means to instruct skills to mentally handicapped students. However, unless mentally handicapped individuals are taught to generalize acquired skills, the probability of them performing these skills in new settings is very unlikely (Auxter, 1982; Stokes & Baer, 1977; Wehman, Abramson & Norman, 1977). Over the last decade researchers have become increasingly concerned about the lack of skill generalization recorded through experimental data with exceptional children.

Wehman and Hill (1980) state that:

> If true generalization is to occur it is imperative to provide sufficient opportunities for practice in real situations where all variables cannot be controlled but where potential discriminative stimuli do naturally exist . . . Skill generalization cannot be assumed to occur without instruction. (p. 5)

Nature of Generalization

There seems to have been much diversity amongst studies as to the nature or degree of generalization recorded. This would suggest that the concept of generalization requires a clarification of the definition in order to provide some consistency in what is actually

taking place in studies where generalization of skills has/has' not been reported. Kazden and Bootkin (1972) suggest that the concept of generalization could be more clearly understood by subdividing it into two classifications: response generalization and stimulus generalization.

Response generalization refers to an improvement of desirable behaviors other than those on which instruction or training was given. As an example, a student has been taught to perform a front float in swimming but has not received any instruction on how to perform a back float. If after independently performing a front float this student was also able to do a back float without additional instruction, one could conclude there had been a generalized response. This type of generalization appears to be much more difficult to achieve than stimulus generalization, as the generalization responses require the learning of two discrete tasks (Stokes & Baer, 1977).

Alternatively, if a person demonstrates a learned response in a new untrained setting, learning would be termed stimulus generalization. Thus, if the above student performed a back float in a pool or a lake other than where instruction took place, the student's performance would be termed stimulus generalization. The exact meaning of stimulus generalization depends upon the treatment being considered. It can require a transference of performance from the control of one instructor to another, from one setting to another, or from control of extrinsic reinforcement to naturally occurring reinforcement achieved by performing a skill independently (Gruber, Reiser & Reid, 1979; Koegal, Egel & Williams, 1980; Reisinger, 1978; Stokes, Baer & Jackson, 1974; Van den Pol, Iwata, Ivanac, Page, Neef & Whitley, 1981;

Walker & Buckley, 1972; Watkinson & Wall, 1982; Wehman, 1977 and 1980). It seems as though it is a much easier, more natural type of learning to occur as it involves extended learning of one response rather than the transference of learning from one response to another.

The Degree of Generalization

Tests are often used to determine the degree of a person's ability to generalize an acquired skill. If one is able to generalize skill learning to similar task demands compared to those trained in/on, it could be concluded that a person was capable of "near generalization" (Borchowski & Cavanaugh, 1977).

Alternatively, "far generalization" occurs when the changes in task demands are more dramatic (Borchowski & Cavanaugh, 1977). The greater the degree of generalization, the greater the scope of the skill that is being probed. "Near" and "far" generalization are terms that can be applied to cases where a response is demonstrated under new stimulus conditions (stimulus generalization) and where new, related responses are demonstrated under the same stimulus conditions (response generalization). If a student has been instructed on the front float and then performs a back float without any instruction, after learning a front float, he or she has demonstrated response generalization. However, if after learning a front float the student was able to perform elementary backstroke with no instruction, although this is extremely unlikely, this learning would be termed far generalization.

Similarly, in a case of stimulus generalization, if a student learned to float in one swimming pool and was then able to perform the

skill as well in another pool, it might be termed near generalization. If the student was able to perform a float without assistance in a lake or an ocean, the performance, in comparison to the first example, would be termed far generalization.

Many skills cannot be easily transferred to other tasks or situations. Researchers need to be aware of the appropriateness of skills in varied settings, and of the specificity of many tasks. Thus, when asking subjects for consistent performances over situations, or different but seemingly similar performances, they must not mistakenly determine failure of a person to generalize learning to a new situation, when the desired response performance was subtly different from the learned one (Borchowski & Cavanaugh, 1979).

Methods to Train Generalization

There are few remedial approaches that have sufficiently attended to the development of appropriate generalization training methods to assist mentally handicapped students to learn to generalize acquired skills. One common method of examining generalization Stokes & Baer (1977) have termed the "Train and Hope" method. In this type of examination, probes for generalization across responses or settings are conducted without previous generalization programming or training. If generalization of responses or settings is deficient, then appropriate training procedures may be implemented (p. 351).

However, if researchers wish to program generalization training as part of the instructional process, a number of training procedures should be implemented.

Initially, subjects need to learn to achieve reinforcement through

independent performance of a skill, rather than the reinforcement of an instructor. Systematic fading of instructor assistance and reinforcement will greatly enhance the transference of control of performance from the instructor to subject (Gruber, Reeser & Reid, 1979; Stokes & Baer, 1977).

Gruber, Reeser and Reid (1979) used this technique to instruct handicapped students to walk independently from their living area to the school. This skill could result in greater independence and freedom for the students once they were capable of performing independently. The skill was taught in the natural environment which would assist transference and maintenance of training to naturalistic conditions. As well, the extent of instructor interventions and quantity of reinforcement were decreased systematically over training sessions, thus increasing the independence of the students. Through this method of training, subjects, if successful, would be achieving reinforcement through the consequences of performing the skill.

The PREP model of instruction, utilized at the University of Alberta, employs a prompting continuum during instruction (Watkinson & Wall, 1982). The continuum facilitates decreased instructor assistance and increased independence of students as their skill levels improve. As well, it is hoped that the target skills are naturally reinforcing to the children, which will greatly enhance the likelihood of children continuing to perform them in natural, untrained settings.

Generalization is often only measured across one extra-experimental condition, such as responses, settings, subjects or time. When generalization is not observed Stokes and Baer (1977) note that it

is then sometimes trained across every possible nongeneralized condition. Wehman and Hill (1980) state that it is necessary to provide sufficient opportunities for learning in actual settings where all the variables cannot be controlled. However, it is not necessary to train generalization across all possible responses or stimuli. Rather, Stokes and Baer (1977) suggest that:

> . . . generalization to untrained stimulus conditions and to untrained responses is programmed by the training of sufficient exemplars (rather than all) of these stimulus conditions or responses. (p. 355)

How many exemplars are "sufficient" to bring about generalization? Wehman and Hill (1980) suggest that two or three different settings are necessary in order to achieve generalization. Hill, Wehman and Horst (1980) taught three severely handicapped youth how to generalize their acquired skills into a community setting. It was found that generalization instruction in one additional setting was sufficient to bring about generalization of acquired skills on a pinball machine.

Baer, Stokes and Jackson (1974) found that training of a greeting response to mentally handicapped children by one experimenter was not sufficient to bring about generalization of the acquired skill to other members of the staff. However, through generalization training by a second experimenter, high levels of skill generalization were noted in the presence of other staff and newcomers. Thus, as illustrated in this study, although subjects did not generalize their acquired skills across one exemplar, the utilization of two exemplars was sufficient to bring about stimulus generalization (Stokes & Baer, 1977, p. 355).

The above two studies illustrate the use of sufficient exemplars to train generalization across stimulus conditions, both experimenters and settings. The training of response generalization in a similar manner seems to be more difficult to achieve. Responses are often discrete in nature, and more difficult to train using multiple exemplars. Stokes and Baer (1977) report that the number of exemplars sufficient to achieve response generalization varies widely across studies, likely due in part to the diversity of tasks trained and the varying skill and experience levels of participants.

The general agreement amongst researchers does seem to be, however, that "Skill generalization cannot be assumed to occur without instruction" (Wehman & Hill, 1980, p. 5); and as Auxter (1982) describes, in the hierarchy of instruction in order to achieve independent community participation, first there must be:

> Development of regimens that enable generalization of the activity from adapted physical education classes in the schools to community activity. (p. 55)

The Training of Appropriate Social Skills

In order for mentally handicapped students to achieve success in an integrated community program they must display a certain degree of competence in both physical skills and social maturity. The importance of social behaviors demonstrated by mentally handicapped individuals in integrated settings has been widely acknowledged (Goodman, Gottlieb & Harrison, 1972; Nihera, 1979; Reiter & Levi, 1980). Research findings indicate that many mentally handicapped individuals display a lack of social skills in the community (Gold-

stein, 1964; Guralnick, 1984; Reiter & Levi, 1980; Reiter, Safir & Freidman, 1984).

Hill, Wehman and Horst (1980) instructed three profoundly mentally handicapped males how to use an electric pinball machine. Instruction consisted of skill development and generalization training which took place in a community setting. During generalization probes in the community it was noticed that the students attracted adverse attention from nonhandicapped people by displaying stereotypic behaviors such as noise making, body rocking, and other self-stimulatory behaviors. As these behaviors continued over numerous sessions, it became apparent to the trainers that intervention was needed to teach appropriate social behaviors. A program was developed and used during community training sessions to help the students learn to display appropriate social behaviors while learning to play pinball.

As demonstrated in the above study, generalization training of physical/leisure skills in the community may more clearly emphasize the need to begin dealing with social behaviors and the need to develop measures for assessment and training for such behaviors (Hill, Wehman & Horst, 1980).

The definition of social behavior encompasses a wide diversity of variables which include: emotional stability, interpersonal behavior, and social skills. Thus, an analysis of required social competencies in a given situation requires a careful profile of a wide diversity of behaviors.

Numerous studies have demonstrated, as illustrated in the above study, that mentally handicapped individuals typically display poor social skills in community environments. Argyle (1981) and Bellack

(1979) note, however, that deficits in social skills may be remedied by training. Social skills are learned responses, and require instruction as do physical or academic skills. The need to train individuals who are mentally handicapped appropriate social skills seems to have been recognized and is slowly being remedied (Reiter & Levi, 1980).

Results have generally demonstrated that although students acquired new skills in certain settings, they have often not generalized their social skill learning. Reiter et al. (1984) found that an experimental group of mentally handicapped children, after five months of training, exhibited a marked improvement in social-interpersonal behavior, as compared to a control group who did not receive treatment. However, although the experimental group's social skills were rated better by teachers following the intervention program in their classrooms (where instruction took place), no changes occurred in the general levels of inappropriate activity, as recorded by the observers.

Reiter and Levi (1980) found, through a study of the adjustment of mentally handicapped adults in the community, that subjects did not demonstrate response generalization for different elements of social behavior. Achievements in the areas of (a) daily living social competencies, (b) interpersonal relations, and (c) emotional stability were distinct and independent of each other in that achievements in one area did not necessarily affect achievements in other areas.

The results of the above studies imply that mentally handicapped people are capable of learning appropriate social behaviors, but

programs should cover each dimension of desired social skills separately (response generalization) and, as Reiter et al. (1984) advocate, students should be instructed to perform their acquired skills in various situations (stimulus generalization). In other words, generalization of social skills must be trained.

Thus, as mentally handicapped students are trained to enter into programs in the community, they must be provided with instruction on both the physical and social skills needed for a particular setting. As well, they must be assisted to learn to generalize these skills to a community setting, for it is only when students are able to generalize and transfer acquired skills, that they will be able to function independently and effectively in their community.

Use of Transitional Programs in the Integration Process

Phases of instruction termed transitional would represent an intermediate step between segregated and totally normative community settings.

As Arsenault and Wall (1979) suggest, this phase may include reverse integration whereby the ratio of handicapped individuals to nonhandicapped individuals is in opposition to integrated programs, as small numbers of nonhandicapped peers participate in specialized programs for individuals who are handicapped. It is a common approach in the United States, Arsenault and Wall suggest, as the focus of difference is on the nonhandicapped individual rather than the handicapped.

Nonhandicapped peers can also provide appropriate role models

for mentally handicapped individuals, which will facilitate skill acquisition (Guralnick, 1976; Wehman and Hill, 1980).

Devoney, Guralnick and Rubin (1976) introduced a group of nonhandicapped children to a segregated setting. With the guidance of teachers using the nonhandicapped peers to promote various interactions, a marked increase in the quality of social interactions occurred. Teachers also noted that the play of the handicapped children took the same form of play modelled by nonhandicapped peers, which was more sophisticated and organized than they had previously exhibited.

Stokes and Baer (1977) additionally suggest that nonhandicapped peers may act as a stimulus that is common to both training and generalization settings. Their literature review suggests that only a few studies have utilized a stimulus that is common to both training and nontraining settings. The use of peers, they suggest, has much to recommend as it is "a practical natural technique" (p. 360).

Arsenault and Wall (1979) suggest that the transitional phase may represent the initial phase for family participation. It is suggested that family involvement should be advocated as parents and siblings can provide models of appropriate behavior. As well, the family setting can provide an outlet for recreation participation outside a class setting.

Wehman and Hill (1980) advocate the involvement of parents. However, they caution that by the time handicapped students reach adolescence, parents' hope of their child being integrated into the community may already be diminished. They stress that teachers and other pro-

fessionals must provide the leadership for training in the community from which parents can draw the needed support.

Use of Support Services in the Integrated Process

People who have not previously participated in community activities may lack the self-confidence, skills, or motivation to get involved. Hutchison and Lord (1979) suggest that support systems are needed to assist these individuals to develop the necessary skills for participation in an integrated setting. Supports may include appropriate ideology, volunteer support, educated staff, and planned developmental experiences (p. 120).

Hutchison and Lord suggest as well that there are two essential components included in providing successful integrated experiences for handicapped people. First, there needs to be a commitment from the community to encourage and include handicapped people in ongoing programs and experiences. Second, support is essential for individuals who have not been previously involved in community experiences. They suggest that support can take several forms, depending on the situation and participants' needs. As participants become comfortable and more confident, support can begin to be phased out. Arsenault and Wall (1979) suggest that through the provision of appropriate support systems, success will be guaranteed for the mentally handicapped participant. Families can again assist in the provision of supports for active participation. This may include information about the program, physical readiness, or provision of transportation.

Integrated Program Participation

Stensrud (1978), Arsenault and Wall (1979) and Hutchison and Lord (1979) suggest that this phase is the desirable goal of a recreation integration service continuum. As participants gain self-confidence, skills, and independence, supports initially built in can be gradually withdrawn. Hutchison and Lord (1979) suggest that the importance of advocacy decreases, not only due to increased independence of participants, but also because, over time the setting has become much more supportive. Staff and nonhandicapped participants have become more comfortable in the situation and can begin to be the providers of support where needed.

Through the process of integration, Hutchison and Lord (1979) suggest that participants in the community gradually become more accepting of individual differences and supportive of each others needs. As a result, support can be decreased. With time, and through shared experiences people, both handicapped and nonhandicapped alike, can participate in socially integrated experiences.

It does, however, require,

> education, support, and a commitment to integration to make it possible for these experiences to be positive for all participants involved and to be the basis for important attitude change.
>
> (Hutchison & Lord, 1979, p. 122)

CHAPTER III

METHODOLOGY

Sample

This study focussed on motor skill acquisition of moderately mentally handicapped young adolescents with an average IQ of approximately 44. The participants were fourteen moderately mentally handicapped students, aged nine to fourteen years. The students came from one regular junior high school in the Edmonton Catholic School District, where they constitute two segregated classrooms. There were eight boys and six girls involved in the study. The students were all ambulatory, with no major physical disability, and had varying degrees of language competence. All participants lived with either natural or foster parents, and attended school on a day basis.

Instructors

The instructors in the program were six senior undergraduate students, enrolled in an adapted physical education course. The investigator was the swim instructor coordinator. All instructors were either certified swim instructors or at least proficient swimmers.

The instructors who assisted with the study underwent a training program prior to working with the students. Training covered assessment, prescription and methods of instruction of swim skills appropriate for the students in this study. As well, the teachers

met twice a week throughout the study with the coordinator to discuss procedures and results as indicated on daily evaluation forms.

Time and Duration

The study encompassed a time frame from September 28, 1983 to March 31, 1984. Phases I through IV were held before the Christmas break. Phases V and VI began in January 1984, and continued until the end of March.

Phases I through III were held on Wednesday and Friday mornings. The approximate timetable for each day was as follows:

9:20 - 9:35	Students arrive and change for swimming
9:35 - 9:45	Free time, individual acclimatization to the water
9:45 - 9:55	Group warm up activity
9:55 - 10:35	Individualized instruction and practice/free play
10:35 - 10:45	Group game/activity
10:45 - 10:50	Free time, clean up
10:55	Leave pool; change to go back to school

In total, this half of the study encompassed twenty-eight sessions with the subjects. This time was further broken down into three assessment sessions, fifteen sessions of instructional intervention and four sessions of final assessments, in preparation for instruction in integrated programs.

Preparation for Phase IV took place over several evenings in the first half of the program. A final assessment of students took place on the evening of December 14, 1983.

Phase V began in January 1984. Ten weekly sessions were held on Saturday mornings from 11:00 to 11:45. The program terminated on March 31, 1984. Two students continued on into Phase VI after this date, in the following session of recreational learn-to-swim classes.

Instructional Model

The focus of this study was to develop a process towards integration of mentally handicapped students into community learn-to-swim programs. This process included a systematic progression of skill acquisition/upgrading, generalization training, and sequential introduction into integrated programs.

Phase I: Skill Acquisition and Upgrading

The first phase was designed to take place in a segregated physical activity class. Participation in this setting offered familiarity and security for the mentally handicapped student. A direct, criterion referenced model of instruction was utilized to teach beginning swimming skills. In addition to the acquisition of physical skills, the program focussed on the development of appropriate social, self-help and safety skills that are prerequisites to participation in community swim programs.

The model of instruction, based on the PREP model of instruction (Watkinson & Wall, 1982), employed a prompting continuum during instructional episodes. This resulted in progressive decreasing of instructor assistance as a student's independence increased and his or her skill level improved. Ideally, the student learned to per-

form the acquired skills for the natural satisfaction achieved through its execution.

This individualized instructional model (adapted for swim skill instruction) was characterized by the following six processes:

1. Observational assessment of students' swim skill proficiency demonstrated during free swim
2. Individual detailed criterion referenced assessment of each student's level of skill performance on identified target skills
3. Selection of two target skills for instruction (based on range, and degree of proficiency)
4. Identification of response level at which the student performed prescribed skill
5. Individualized instruction on prescribed task
6. Monitoring of student's progress during instruction, with an ongoing progress evaluation over time

Assessment

Before swim skills could be accurately prescribed for instruction it was necessary for an instructor to determine at what level of skill a student could and would perform.

Initially, subjects were permitted free time in the water without instructor intervention (with the exception of a classroom teacher and swim coordinator who were in the water for safety reasons). No instructional intervention was made, except for safety reasons (e.g., a student going beyond his or her depth). Subjects were observed for the diversity and level of skills demonstrated (see Appendix B).

In order to determine each student's repertoire of skills a more comprehensive assessment was then done, over two sessions, utilizing a criterion referenced assessment device, defined as the Individual Student Profile (see Appendix B). Eight target skills and their task sequences were the basic elements of the assessment. Students were assessed on their level of performance on each task sequence, and the level of assistance required to perform a task step (physical, visual, verbal or independent).

Prescription for Instruction

After students were assessed on their overall level of swimming skill performance, instructors prescribed two swim skills for each subject, based on their performance during the initial assessment.

Acquisition of swimming skills follows a hierarchy of learning (see Appendix A). Provided with this information and the awareness that it was important to increase not only the depth but the breadth of students' skills, instructors chose two out of the eight target skills for instruction.

Students entered the program very diverse in the depth and breadth of their swim skills. Several of the students were not complete nonswimmers. Consequently, each student's swim skill prescription for instruction was different, dependent on each individual's swim skill repertoire.

Individualized Instruction

Following a group warm up, students received individualized instruction, by one instructor, on two prescribed skills. Instructors

had two students with whom they specifically worked, one at a time, during this block of time. When students were not receiving instruction they were free to practice newly acquired skills, or interact with other students not receiving instruction.

Each instructor attempted to spend a minimum of five minutes of instruction per day with each student. The instructor's goal was to move the student through the task sequence to the target skill, meanwhile ensuring that he or she reached independence as early as possible in the task sequence (Watkinson & Wall, 1982).

Based on a student's previous performances, the instructor was required to determine the appropriate level of assistance to utilize, prior to the student's performance. Following the performance, the instructor was required to determine the appropriate feedback to give the student, based on the execution of the desired skill (Watkinson & Wall, 1982).

The assistance given to a student, which follows a decreasing progression of assistance from physical, to visual, to verbal, to no assistance has been called the prompting continuum (Watkinson & Wall, 1982). The prompting continuum suggests a systematic fading, or reduction of assistance until a student performs a subskill independently. When a student could perform the subskill independently, the instructor would begin instruction on the next subskill in the task sequence.

The sequence for fading assistance, adapted from the PREP model of instruction (Watkinson & Wall, 1982, p. 22) is summarized below (see Figure 3.1). For a more complete description of the continuum of instructional assistance see Appendix A.

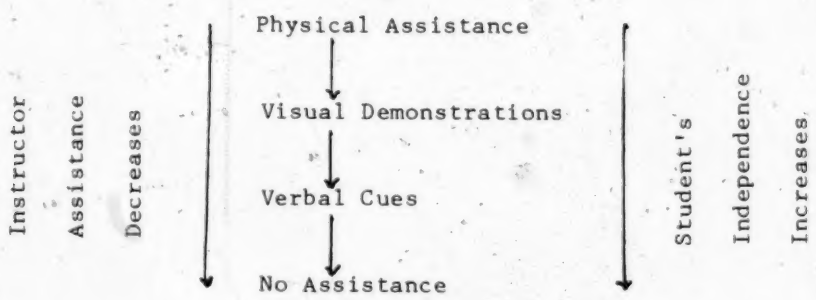


Figure 3.1. Continuum of instructional assistance

Phase II: Skill Upgrading and Generalization Training

In the second phase of the process, instruction was continued in the same manner as in Phase I. In addition systematic attempts were made to facilitate the generalization of skills to new stimulus conditions.

When acquiring a skill, a student must learn to perform it for different instructors and in different settings. Stokes and Baer (1977) concluded that if one wishes to program the generalized performance of responses across various settings, conditions, or persons, training should occur across a sufficient number of setting conditions and/or with various persons. They suggest that a "diversity of exemplars" should be trained in order to achieve the greatest degree of generalization (p. 35).

How many people or settings are needed to train students to generalize their skills to new settings and/or persons? Various studies have suggested that the use of two trainers is sufficient to yield generalizable results (Borchowsky & Cavanaugh, 1979; Stokes & Baer, 1977; Walker & Buckley, 1972). Based on this research, and in consideration of the time and cost, it was determined to go with the

use of two instructors and two settings to train students to generalize their skill performance.

In order to train generalization sequentially and systematically, it was determined that first and most importantly the students should learn to perform their skills for a variety of people. This was even important to learn for continued participation in a segregated setting, in order that various instructors or volunteers could assist a student to practice without the student being "welded" to one instructor in performing acquired skills. Thus, generalization training to other instructors was the first step of phase two. Once students' levels of performance on their swim and social skills met the preestablished criteria, as described in Appendix B, instruction in different settings was employed to train generalization across settings.

Wehman and Hill (1980) stress if true generalization is to be successfully trained it is necessary to provide regular practice in true environments where distractions and confounding variables cannot be controlled (p. 5).

Hill, Wehman and Horst (1980) successfully utilized an alternating treatment whereby on alternate sessions students received instruction in a community setting. Students' performances in the new setting could then be compared to performances in the regular segregated setting. The above method of alternating treatments was utilized to train students to generalize their skill learning to different settings.

Similarly, in the scond part of this phase, instruction in two different settings took place. On alternate days instruction took place in the West university pool, rather than in the known, East pool.

This was the method utilized by Hill et al. (1980) to bring about generalization to other settings, in the above mentioned study.

Phase III: Consciously Simulated Integrated Program With Required Supports

Several progressive steps are required for a mentally handicapped person to become accustomed to performing in a community instructional setting. Security and self-confidence may be lost if a handicapped student is put into a community program where he is focussed on as being different, if he and other participants have not received adequate preparation.

First, students must become accustomed to the presence of nonhandicapped peers during instructional time, as they would be present in an integrated setting. With the inclusion of nonhandicapped peers as part of generalization training, or through the "programming of common stimuli" (Stokes & Baer, 1977) it was anticipated handicapped students would be more successful in generalizing their skill learning to an integrated setting. Thus, in this program the first step was to include a few nonhandicapped peers in the "setting" when students were still receiving individualized instruction in a segregated program.

Phase III of the process thus was comprised of a program of reverse integration. This phase provided an intermediate step between segregated and totally normative community based programs for handicapped individuals. The step between Phase II of a specialized program in a new setting, and an integrated program is simply too large for a student to be expected to continue to demonstrate improvement.

The intermediate step thus permitted handicapped students to become accustomed to the presence of small numbers of nonhandicapped peers before being immersed in an integrated program where the ratio of handicapped to nonhandicapped individuals would be reversed.

Phase IV: Integrated Recreational Activity Program With Known Peers/ Family

By the time mentally handicapped students reach adolescence parents' hopes may already be diminished for the probability of their child's integration into community activity programs (Wehman & Hill, 1980). If, however, parents are made aware of the goals of the program, and how to assist their child in the water, they will be more likely to take the opportunity to participate in recreational swims with their child. This phase constituted an opportunity for parents to become involved with their child in the instructional swim program. They were then better prepared to work with them during community recreation swim sessions.

Phase IV, then, constituted recreational involvement with family, and/or known peers in a community swim program. In order to provide an initiation to this phase, parents were contacted by telephone, and meetings were held to familiarize them with the goals of the program. In early December, a pool session was held for interested parents. Here parents were familiarized with the swim skills their children were acquiring, and how they could continue to assist them to practice during recreational swims.

A family recreational swim evening was held on December 14, 1983, to which all parents and siblings were invited. This evening per-

mitted students to demonstrate to their parents the skills they had acquired. As well, it was hoped that this evening would provide incentive for parents to continue Phase IV on their own. Observations were made of students' performance levels on acquired skills, in the presence of their families.

Phase V: Integrated Instructional Program With Continuous Support

The goal of this phase was to provide an opportunity for mentally handicapped students to participate in integrated swim instructional programs in the community.

In this phase, students participated in public learn-to-swim classes at the University of Alberta, accompanied by a familiar instructor. Instruction in this phase was provided on a group basis, with approximately six to eight students to one instructor. Students were assessed and instructed through the Standardized Red Cross model of swim instructional levels. A known instructor (volunteer from the previous phases) accompanied the student in the class setting. The role of this instructor was varied as needed. Instructors assisted in changing and finding the correct pool; also by providing additional instructions for the student to understand, and by providing encouragement as the student attempted new skills.

This phase presented a large progression for students, as they were now placed in a reversed role, with the majority of students being unknown nonhandicapped peers. Instruction took place in a group setting as well. Thus initially, students may have been quite dependent upon their own instructors for support. However, although skill acquisition and upgrading continued to be a goal of the program, the

main focus of this phase was participation in a regular community program, with the gradual reduction of instructor assistance as students became more confident of themselves in the new situation.

From Phase V onwards, parental support was necessary, to assist a student to bring appropriate clothing, and provide, or arrange, transportation to and from the recreational facility. If parents were unable to provide the required assistance students would be unable to participate in this or subsequent phases.

Phase VI: Integrated Instructional Program With Minimal Support

In Phase VI, students continued to participate in public learn-to-swim classes at the University pool, accompanied by a familiar swim instructor. In this phase, however, an instructor's support was provided only on a verbal level. Instructors did not enter the water, providing additional verbal instructions only when necessary to assist the students' understanding of directions. Thus, interaction was provided on a minimal basis when needed, for assistance on instructions, practice, or changing clothing. Students were aware that their instructors were present, to assist them if they needed help.

Phase VII: Integrated Instructional Program With No Support

Once students had performed consistently at the levels on swim and social skills that were established as criteria for entry into this phase, they were ready to participate self-sufficiently in an integrated community learn-to-swim program. Community swim instructors were sensitized to the presence of a handicapped student in the class, so that they were able to cope with any problems that could

arise. However, a student would participate self-sufficiently on a daily basis in the program.

Students, then, participated independently from the time they arrived at a facility, changed clothing, entered the pool area and had a swim lesson, until they were met by parents or friends to be taken home after the lesson. The students' swim instructors from Phase VI would be accessible for parents, and/or the regular swim instructors to contact if any problems or questions arose through the session. Students' progress was monitored through contact with swim instructors, to ensure that students, both handicapped and non-handicapped, and the instructor were all coping adequately in the integrated environment.

For some individuals, the continuum offers an opportunity to develop skills and confidence that promote independent involvement in community recreational programs. Participation at this level emphasized normative participation by mentally handicapped students whereby appropriate social, self-help and safety skills could be displayed both in and around the pool and facility. However, achievement of this level by mentally handicapped individuals requires the commitment of many individuals over time, to assist students' acquisition of necessary physical and social skills (Arsenault & Wall, 1979).

Evaluation

Daily records were kept on students' performance levels of swim and social skills. Daily Record forms kept by instructors (see Appendix B) indicated the task level that swim skills were performed at, and the amount of time spent on each skill. Each student's typical

daily performance was plotted to permit instructors to determine each subject's overall progress on each skill. Social skills were recorded on a social skill competency checklist daily (see Appendix B).

In order for instruction to be considered effective, maintenance or an improvement in skill performance was required to be demonstrated in each phase.

Changing Criterion Design

A changing criterion design was selected to answer the question of whether subjects' progress through the treatment phases would result in successful community integration. A single subject, time series design was selected for three major reasons. First, students classified as moderately mentally handicapped typically display wide inter-individual variability in their motor performance (Wall, 1981). Second, as the instructional model was based upon individualized instruction, it was important to determine the effects of the treatment for each individual (Kratochwill, 1978). Third, individuals were expected to progress through the treatment process at their own rates, which additionally supported the need for a single subject design.

The changing criterion design is a variation of a multiple baseline design. This design includes two major phases much like an AB design. The difference between the AB and changing criterion designs is that, in a changing criterion, the intervention phase is divided into subphases. Each subphase requires a closer approximation of the terminal behavior than the previous one. The subject's performance then moves gradually from baseline levels to the terminal objective.

Minimum swim and social skill levels were defined as entrance requirements for each phase of the treatment. Students' performance levels were compared to the preestablished criteria prior to entry into a new phase. Thus, this model of instruction well suited a changing criterion design.

Alberto and Troutman (1982) suggest that this design is particularly appropriate when the final goal of a behavior change program requires a considerable length of time to reach. Hartmann and Hall (1976) advocate the use of a changing criterion design when an investigator wishes to gradually shape behavior changes over time. In this way, students' progress may be monitored to ensure that they do not regress in performance levels.

The design requires initial baseline observations on a single target behavior. This baseline phase is followed by implementation of a treatment program, in each of a series of treatment phases. Each phase is associated with a step-wise change in the criterion rate or level for the target behavior. In this way, each phase of the design provides a baseline for the following phase (Hartmann & Hall, 1976).

In this study, phases represented successive steps towards the final desired goal of integration. Swimming and social skills were gradually acquired and maintained as students were provided with instruction in progressively more distracting and challenging environments. A changing criterion design effectively displays the step-wise increases in criteria as each phase brings a student closer towards integration into a community instructional learn-to-swim program.

The major goal in this study was to assist moderately handicapped students to acquire levels of swim and social skills that would permit them to be successfully integrated into community swim programs. There are, however, several substeps needed prior to the final phase of the program in order to ensure success in this phase.

The baseline phase consisted of three sessions of assessment on students' performance of swim skills. Some researchers would argue that this baseline phase was very short. Hartmann and Hall (1976) however, suggest that a minimum of two interventions are needed in each phase. Campbell and Stanley (1966) suggest that phases should be long enough to ensure that subsequent changes of behavior that take place are due to the treatment, not naturally occurring factors such as history or maturation. It has been well established, however, that individuals do not generally acquire swimming skills without instruction. Thus, it is relatively safe to use a shorter baseline phase for assessment of students' swimming skills.

According to Hartmann and Hall (1976) the length of each treatment phase, and number of criterion changes will vary in accordance with the total length of treatment, the variability of the target behavior, and the difference between the baseline and anticipated rate of acquisition of skills. Also, they suggest that in deciding the length of each treatment phase, clinician-researchers must remain sensitive to their clients' needs, and not hold them at a level longer than necessary. In this study, subjects progressed through the phases at an independent rate, determined by their progress on swim and social skills.

The Use of an Alternating Treatment Design Within the Phases of Treatment

Phases II and III within the changing criterion design additionally utilized an alternating treatments design to train generalization of skills over multiple settings. An alternating treatment design does not require an extended baseline phase. Instead, baseline conditions and alternating independent variables are interspersed throughout the treatment (Sultzer-Azaroff & Mayer, 1977). The design involves measurement of a behavior under alternating discriminable conditions of the independent variables. Thus, in the typical design, after a baseline period, two treatments (A and B) are administered alternating with each other, and the effects on one behavior are observed.

Wall (1981) and Hill, Wehman and Horst (1980) suggest that this design has rarely been used to assess treatment variables across different environments; however it lends itself well to assessing stimulus generalization. The latter researchers utilized an alternating treatments design to train handicapped students to learn to play pinball in a community setting. In order to increase the amount of training in the community, instructional sessions alternated between the school and a community setting.

Phases II and III in this study utilized a design similar to Hill et al's. study. In Phase II, treatments were alternated between the known pool setting and a new unknown pool. In Phase III, known nonhandicapped peers were present in the new setting as well. This design permitted a comparison of the effects of a new setting with a known one on students' performance levels on swim and social skills.

Experimental Validity

It is possible that extraneous uncontrolled variables can affect the performance of the dependent variable, thus affecting the experimental validity of a study (Kratochwill, 1978). Campbell and Stanley (1966) and Kratochwill (1978) state that a time series design is valid only to the extent that changes obtained in the dependent variable can be accounted for by the effects of the independent variable.

There are two types of experimental validity: (a) internal validity, which refers to the degree of confidence that observed changes in the dependent variable are due to effects of the independen- variable, and (b) external validity, which reflects the extent that results of a study can be generalized to different subjects or settings.

Internal Validity

Time series designs are typically subject to sources of invalidity to a greater extent than conventional group designs (Kratochwill, 1978). Kratochwill suggests that possible threats to internal validity would include: history, maturation testing, instrumentation, multiple intervention interference, instability, change in unit composition and reactive interventions.

History refers to events which are taking place at the same time as a treatment is being provided, which as a result may produce a change in the dependent variable (Kratochwill, 1978). Since it is likely that the only potentially confounding historical event that could affect swimming skill would be lessons, and since none of the

students was involved in instructional swim programs other than the treatment program, history can be virtually ruled out as a threat to the validity of the study. Data were collected on a continuous basis (two days per week), which would control for history to a certain degree, as an event which affected the majority of the students would be noticed through uncharacteristic behaviors exhibited by the students. For an individual student, historical events such as swimming practice outside of the lesson time would be beneficial to a student, but would be noted through a rapid improvement in skills, and through communication with the parents of the student.

Maturation, which refers to physiological, physical or psychological changes that take place within subjects over a given time period (Wall, 1981), would have had minimal effect on the dependent variable in this study. As the majority of the subjects only participated in the study for 2½ months, minimal maturation effects would be expected.

Testing effects occur when subjects' improved performance on a posttest is partially due to subjects having been pretested. This could have posed a threat, as the posttest was a replication of the pretest. Due to the nature of the treatment, which is very similar to the testing procedure, it is anticipated that at a later time, on a posttest, due to the treatment received, students' performance levels will show an upward trend. Testing effects could have possibly occurred when generalization testing took place in the final assessment prior to integration. Students were assessed by two different instructors in order to obtain reliability of opinions for the level in which students should be placed in the Red Cross program. On the second

occasion students may have been sensitized to a new instructor; thus they may have performed better than they did with the first unfamiliar instructor.

The weakening of internal validity may be caused by instrumentation through inconsistent or unreliable measurement procedures. In this study, instrumentation effects were controlled by checking the reliability and consistency of instructors' instruction and recording procedures. Instructors were randomly checked by the investigator on their teaching episodes through a videotape monitor, and comparison of their records on approximately 25% of their teaching episodes. Records were informally checked for discrepancies between that which was observed and that which was recorded. Any discrepancies were immediately discussed with the swim instructor.

When a time series design utilizes two or more interventions within one set of data, multiple intervention interference may take place whereby the effects of subsequent interventions may be due to the interaction of the previous intervention with later ones (Glass, Wilson & Gottman, 1975; Kratochwill, 1978; Wall, 1981). Within this study, multiple intervention interference could be a problem. Results in each successive phase beyond Phase I were possibly due to the interaction with previous interventions. In Phase II particularly, results from generalization training to different settings could be affected through interaction with training new instructors.

Confounding due to instability occurs when repeated measurements of an individual or group demonstrate a considerable degree of variability (Kratochwill, 1978; Wall, 1981). High inter- and intra-individual variability typically demonstrated in the motor skill

performance of mentally handicapped individuals makes this possibility of confounding due to instability an important and relevant concern (Baumeister, 1968; Wall, 1981).

Changes in experimental unit composition were not a problem. A subject's absence did not change the group composition, as instruction was individualized in nature, on individually prescribed tasks.

Reactive intervention, which may occur when instruction is provided due to a reaction or pattern in the data, was not a major threat to the internal validity of this study (Kratochwill, 1978; Wall, 1981). Intervention phases of the study required the repetition of performance levels over time, in order to determine that performances displayed were acquired skills. Thus, it was anticipated that deliberate application of the intervention at times when performance levels were at extreme levels would not take place.

External Validity

After experimenters have addressed concerns regarding internal validity, external validity of a study must be addressed.

Kratochwill (1978) suggests that external validity requires the consideration of population samples, ecological and environmental influences. Subjects who participated in this study were all from two classrooms within one school, which makes it more difficult to generalize the results of this study to other subjects and situations. However, although from the same classroom, subjects were very heterogeneous in their levels of social and swimming skills. This would infer increased generalizability of the types of individuals for whom the program is appropriate.

Typically, in single subject designs, only one subject is involved. It is difficult to generalize to a population from one subject. Alberto and Troutman (1982) suggest that a way to generalize N = 1 experiments is through replication. This study was replicated across fourteen heterogeneous subjects in order to increase its generality.

The study was conducted in a situation that resembled conditions to which results will be generalized. Kratochwill suggests that ecological validity refers to the extent to which the training environment is representative of the settings to which an investigator wishes to generalize (Kratochwill, 1978). It is suggested that there are at least eleven threats to ecological validity of a changing criterion design, which include the following: (a) describing the independent variable explicitly; (b) multiple intervention interference; (c) Hawthorne effects; (d) novelty and disruption effects; (e) experimenter effects; (f) pretest sensitization; (g) posttest sensitization; (h) interaction of history and intervention effects; (i) measurement of the dependent variable; (j) interaction of time of measurement; and (k) referent generality (Kratochwill, 1978).

A precise definition of the independent variable(s) is important to enable other researchers to be able to replicate an experiment, or to be able to predict whether experimental results can be generalized to other situations. In the present study teaching tasks were clearly written as behavioral objectives and the instructional techniques have been thoroughly described previously (Lister-Piercy, 1983; Watkinson & Wall, 1982).

Multiple intervention interference was discussed previously in

threats to internal validity. Multiple intervention interference could also result in decreased ability to generalize results of a study if subjects have participated previously in experiments. As an example, Kratochwill (1978) suggests that studies which involve "deviant" children who may be involved frequently in more than one behavioral research program may encounter multiple intervention interference. In this study, this problem could be encountered in two ways. First, if a student had previously received swimming lessons, depending on the success of the program, this would affect his/her rate of learning in this program. Or, if a student had been included in a behavioral research study recently, he or she might not wish to receive intensive individualized instruction. Thus social skill performance levels would be adversely affected. As the students in this study were unaware they were participating in an investigation beyond their accustomed swimming lessons, invalidity due to the Hawthorne effect was less likely.

Novelty or disruption effects could have affected this study to a minimal extent. When new conditions were introduced, such as a new pool, or nonhandicapped peers, students' skill performances could vary greatly due to the introduction of novelty phenomena. Alternatively, an intervention could have disrupted the normal routine, which the students were very used to, resulting in interventions being negatively affected during the stages of the study. Baer, Wolf & Risley (1968), however, suggest that novelty and disruption effects can be counterbalanced in the same study, and that over time an estimate of their effects can be obtained. In a time series design such as this one, where repeated measurement was

demonstrated to be part of the method, they suggest that novelty and disruption effects would be less of a threat. In this study, however, novelty and disruption effects were ecologically valid, through the introduction of new instructors and new settings.

In this study it was possible that instructors unintentionally affected the behavior of their students. Kratochwill suggests that active effects (such as social reinforcement), and passive effects (such as age, sex), can dramatically alter the effectiveness of interventions, and thus limit ecological validity. Male instructors had an advantage in this study, as male subjects definitely appeared to prefer to have a male instructor. This was indicated through the interest in one male instructor in the study, and one male who regularly videotaped the sessions.

As well, the personalities of different instructors could have favorably or adversely affected performance levels of some students. This could have affected results obtained in the second phase of the study where differences in a student's performance across instructors may have been due to the above factor. Attempts were made to control teacher effects in final generalization assessments where two instructors assessed the students on their ability to generalize their skills. Extreme differences in skill performance would be unlikely due to skill learning over one session, and thus could have been partially attributed to teacher effects.

Pre and posttest sensitization could have had an effect, as previously described in threats to internal validity as the posttest was a replication of the pretest.

The interaction of history and intervention was discussed in the

previous section in threats to Internal Validity. Effects of history would likely have surfaced through repeated measurements over time.

The measurement of the dependent variable was determined to be reliable as instructor behaviors had previously been operationally defined. Reliability of measurements was monitored through daily videotape analysis.

The interaction of measurement and intervention effects could limit the ecological validity of a study, as it is possible for effects of an intervention not to show when effects are only measured at one or two points in time. In this study, however, repeated measurement of the dependent variable over time would increase the ecological validity of results. Four of the fourteen students continued instruction for an extended period of time, after a six week break, which would have permitted instructors to determine if instruction had a latent effect.

Referent generality refers to all of the possible experimental outcomes that could be obtained from one study. Kratochwill (1978) suggests that in most educational experiments it is important to predict possible outcomes on multivariate dimensions. An experimenter should employ multiple dependent variables in order to determine how other behaviors of subjects are affected by the treatment. As a result, the experimenter would gain an increased understanding of the experimental phenomena as well as the limitations of the experimental validity of the study. The referent generality of this particular study was high in comparison to many studies. Here, data were collected on multiple dependent variables; both swim and social skills. Instruction was only provided on swim skills, but it was

deemed important to monitor students' social skill performance over time. This permitted one to determine the effects of the treatment on multiple behaviors of each student and influence the external validity of the study.

The validity of the instrument was assumed, as the instructional model has been successfully utilized in numerous previous studies relating to gross motor skill acquisition (Terry, 1980; Wasson, 1981: Watkinson & Wall, 1982). Task analyzed skill sequences, which defined instructor behavior for each behavior taught, were piloted successfully in 1983.

Instrumentation

Beginning swim skills were task analyzed and piloted for moderately mentally handicapped students in 1983. Specific instructional behaviors for each level of swim skill were defined. Instruction on prescribed swim skills was based on three important components of the PREP instructional model; task analyzed instructional sequences; reduction of instructor assistance as a student performed a skill over time; and the use of reinforcement and feedback immediately following a student's performance (Watkinson & Wall, 1982).

Specific instructional assistance provided to a subject to elicit a correct skill action were recorded according to the task step at which a skill was performed (see Appendix A), and degree of assistance provided. Students' performances were recorded as independently performed, or performed with the assistance of an instructor through verbal, visual or physical assistance (see Appendix A). Definitions

of categories and subcategories of assistance are included in Appendix B). Responses were recorded on Daily Record forms, which were later transformed onto graphs (see Appendix B).

A social skill competency checklist, designed to capture typical social, safety and self-help skills needed in a pool environment was developed in 1983 (see Appendix B). Students' daily social skill levels were recorded utilizing five categories of frequency, which included: Never, Rarely, Occasionally, Frequently and Always. Data from checklists were later transformed onto tables (see Tables 4.1 - 4.14).

Treatment of the Data

Assessment probes and typical daily skill performances were transcribed onto graphs. The results were subjected to visual analysis (Alberto & Troutman, 1982; Parsonson & Baer, 1978); and assessed according to trend, level and variability of performance within and between phases (Glass, Wilson & Gottman, 1975; Kratochwill, 1978).

CHAPTER IV

RESULTS

To be able to answer the question, "Will progress through this process result in successful integration into community programs?" an evaluation was conducted in two ways. First of all, evaluation of student performance within phases was done to determine the efficacy of the program design within each phase. Each phase was determined to be adequately designed if the majority of students maintained or improved their skills within the phase. The second evaluation was done to determine the efficacy of the sequence of phases, and the adequacy of the criteria for entry into each subsequent phase. Minimal competencies in both swim and social skills were defined as criteria for entry into each subsequent phase of the process. In the evaluation these criteria were deemed adequate if the majority of students demonstrated successful performance as they entered the new phase.

The following chapter covers both of these evaluations. It begins with a phase-by-phase analysis of the process, looking at individual student performance on swim and social skills. The latter part of the chapter examines the process as a sequence with particular emphasis on the evaluation of the criteria for entry into each phase.

Phase I: Skill Acquisition and Upgrading

Fourteen students entered Phase I of the process towards integration. In this phase all of the students demonstrated progress on at least two skills (see Figures 4.1 - 4.14).

After six instructional sessions, six of the fourteen students progressed to Phase II of the process. These students' (Subjects one, four, six, eight, ten and fourteen) swim and social skills had met the preestablished criteria to permit progress to the next phase. Subject thirteen's swim and social skills met the preestablished criteria by the fourteenth instructional session, at which time he entered Phase II of the process. This resulted in seven of the fourteen subjects progressing to Phase II of the process within the time frame of the program.

Six of the seven subjects who progressed to Phase II began the program relatively competent in their swim skills. Subject thirteen was the only student who was an actual nonswimmer.

Subject 1 began the program relatively competent in her swim skills. As shown in Figures 4.1a, 4.1b and 4.1c, she demonstrated a continuous positive trend on two of the three skills on which she was instructed. The front dive, she seemed to dislike doing and her performance decreased rapidly in level after the second instructional episode. This skill was then put on maintenance. Later in the program, perhaps after she had developed more confidence and after watching other children, she began to perform this skill in free time at the task level she had originally demonstrated.

Subject 4 met the preestablished criteria on both swim and social skills, which permitted him to progress to Phase II. He was, however, a rather excitable youngster with a short attention span, resulting in poorer performances on his social competencies (see Table 4.4). His performance on one skill, the front dive, was variable, across days (see Figures 4.4a and 4.4b).

Subject 6 entered the program relatively proficient in both swim and social skills. His social skill level surpassed the required levels for progression to Phase II of the process. He displayed relatively high swim skills at the beginning of the swim program which, with instruction, resulted in rapid improvement, particularly in front propulsion, as illustrated in Figures 4.6a and 4.6b.

Subject 8 met the preestablished criteria on her social skills easily, as illustrated in Table 4.8. As well, her swim skills (see Figures 4.8a and 4.8b) were at a level to permit her to enter Phase II of the program along with the first group of students.

Subject 10 would have seemed to have the greatest potential for an integrated program. He socialized very well with his handicapped peers and, as later demonstrated, with his nonhandicapped peers. Thus, his social skills easily met the preestablished criteria (see Table 4.10) to permit him to enter Phase II after the sixth instructional session. As illustrated in Figures 4.10a, b and c, he acquired swim skills very rapidly, thus displaying a very positive upward trend on his swim skill acquisition during Phase I of the process.

Subject 13 began the program with high social skill levels. Thus, his social skill level met the preestablished criteria early in the program (see Table 4.13). The quality of his swim skills, however, was low initially. His swim performance displayed a very positive trend over the first three lessons, then stabilized, then continued in a rapid upward positive trend (see Figures 4.13a, b and c) so that by the fourteenth instructional session he was able to enter Phase II of the process.

Subject 14 was a very socially mature student. Thus he easily met the preestablished social skill criterion levels early in the program to permit him to enter Phase II of the process (see Table 4.14). He began the program with advanced swim skill levels. Thus, although he did not display improvement on his skills until the fifth instructional session (see Figures 4.14a, b and c), his skills easily met the criterion levels to permit him to enter Phase II of the process.

Seven students did not progress beyond Phase I of the program during the course of this study, as their swim and/or social levels did not meet the criterion levels for entry into Phase II. Subjects 2, 3, 5 and 12 did not meet the criterion levels on either their swim skills or social skills for entry into Phase II (see Figures 4.2a and b, 4.3a and b, 4.5a and b, and 4.12a and b, and Tables 4.2, 4.3, 4.5 and 4.12. Subjects 7, 9 and 11 demonstrated positive upward trends in their swim skill performance over time, as illustrated in Figures 4.7a and b, 4.9a and b and 4.11a and b). However, these three subjects displayed social skill performances that were not appropriate for entry into the subsequent phase, as described briefly below.

Subject 2, aged nine years, physically was a very small child. She was unable to touch the bottom of the pool and consequently was dependent upon continuous assistance in the pool. Thus, her level of swim skills did not meet the criteria as established for entry into the successive phase (see Figures 4.2a and 4.2b). Tiny in stature, a Chinese child lacking in comprehension of English, her social skills also did not meet the preestablished criterion levels. Initially sent

with University Hospital underpants to swim in, it was not until an appropriately sized swim suit was located in the Lost and Found that she wore an actual swim suit.

Subject 3 began the program with weak swim skills. Very dependent upon her instructor, she did not generalize her acquired skills for another person. Just as she began to display increased independence, she was withdrawn from school for a month long trip overseas with her father. Upon her return she had regressed in confidence and performed her skills one task step lower (see Figures 4.3a and 4.3b). The remaining four sessions did not provide her with sufficient time to display any significant performance improvements. Thus, lacking in both social and swim skills she did not progress to Phase II of the process during the time frame of the study.

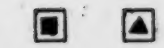
Subject 5 was described by classroom teachers as having severe emotional problems. She occasionally displayed inappropriate social behaviors which included pulling out her hair and picking her arms until they bled. She had a very short attention span as well, and could not always understand or follow directions, as illustrated in Table 5. As well, her swim skill performance level was weak initially (see Figures 4.5a and 4.5b). Thus she remained in Phase I for an extended period of time. When it was determined that her swim skills were adequate for progress to Phase II, and social skills would permit her to progress, family problems resulted in her missing the last few sessions. Consequently she did not progress beyond Phase I.

Subject 7 demonstrated swim skills which were relatively advanced. He demonstrated a positive upward trend on his swim skill

acquisition over time (see Figures 4.7a and 4.7b). However, he had a hearing problem, which was worsened in the pool when he didn't wear his hearing aid. He attended to instructions when he chose, using his hearing disability to his advantage. As a result, his social skills did not meet the preestablished criteria to permit him to progress to Phase II of the process.

Subject 9's swim skill performance was at a level to permit him to progress to Phase II with the other students, but his social skill levels did not meet the criteria for entry into Phase II. He was a boy with some behavior difficulties, occasionally displaying aggressive tendencies. He demonstrated much self-stimulatory behavior, primarily in his shorts. He also occasionally displayed inappropriate behavior by pulling down his shorts in very visible settings. When frustrated he would display this behavior, as he once did by pulling down his shorts and urinating in a drain on the deck. This behavior obviously did not permit him to meet the social skill criteria requirements. Subject 9 did not progress beyond Phase I as, although he did show significant improvement on the front float skill, his social skills did not improve sufficiently to meet the required criteria for entry into Phase II.

Subject 11 had adequate swim skill levels as well to permit him entry into the second phase (see Figures 4.11a and b). However, although he maintained performance level, he did not demonstrate much improvement over time. It was determined that he was lacking in some social skill areas (see Table 4.11) and, rather than push him into the next phase he was kept in Phase I throughout the program. He seemed



Probe

■ Most typical daily performance level--Instructor 1

▲ Most typical daily performance level--Instructor 2

Performance in new setting with 1st instructor

Performance in new setting with 2nd instructor

* Final generalization testing--new setting, 3rd instructor

• • • Skill placed on maintenance

Figure 4.0. Graphing Code

Table 4.1

Social Skill Competencies in Each Phase

for Subject 1

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5	5	5	5
2. Instructional situations				
(a) Individual activities	5	4	5	5
(b) Group activities	5	5	5	5
Social Skills				
1. (a) Structured activities	4	4	5	5
(b) Recreational activities	5	5	5	5
Self Help Skills				
1. Finding way	5	5	5	5
2. Changing for activity	5	5	5	5
Safety Skills				
1. (a) In the changing room	5	5	5	5
(b) Around the pool	5	5	5	5
(c) In the pool	5	5	4	5

Comment: Likes attention of instructor and imitates her. Likes to boss others, or take care of them.

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

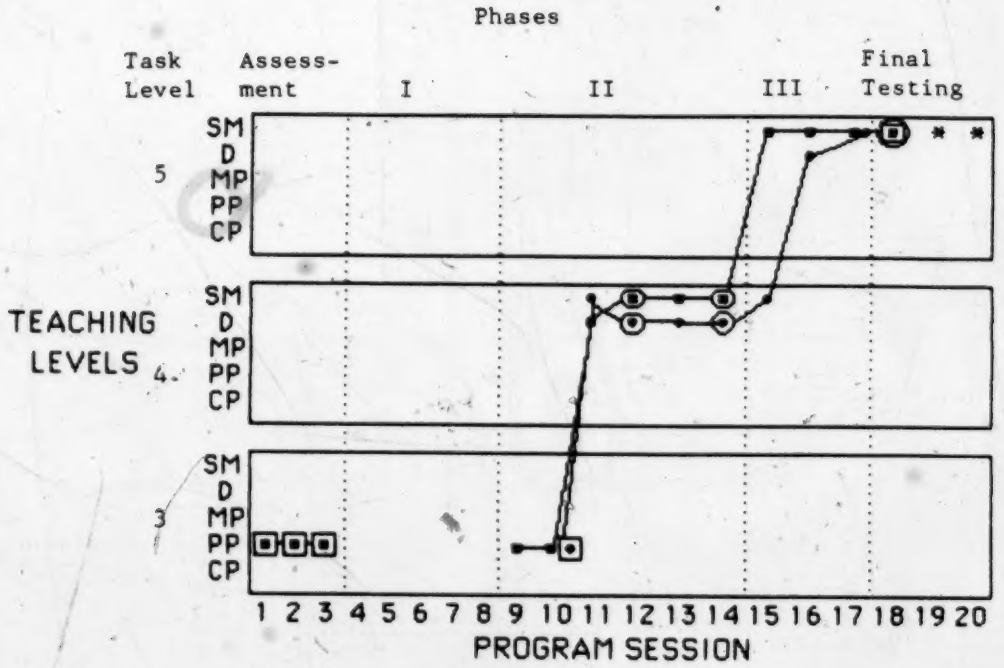


Figure 4.1a. Subject 1: Performance curve for front propulsion--arm action

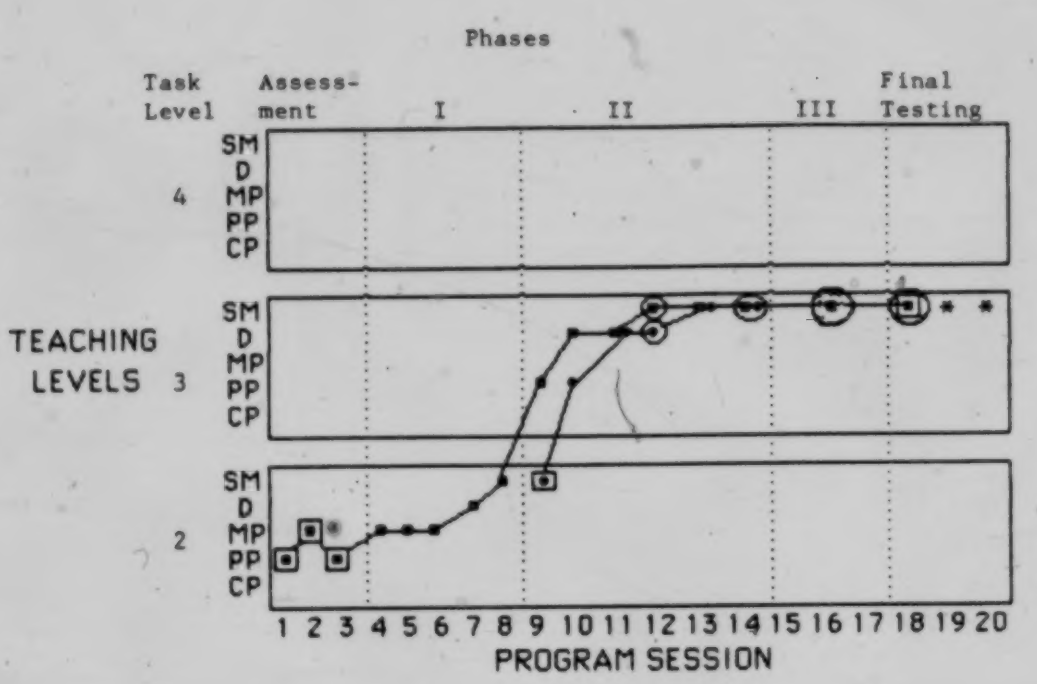


Figure 4.1b. Subject 1: Performance curve for back float

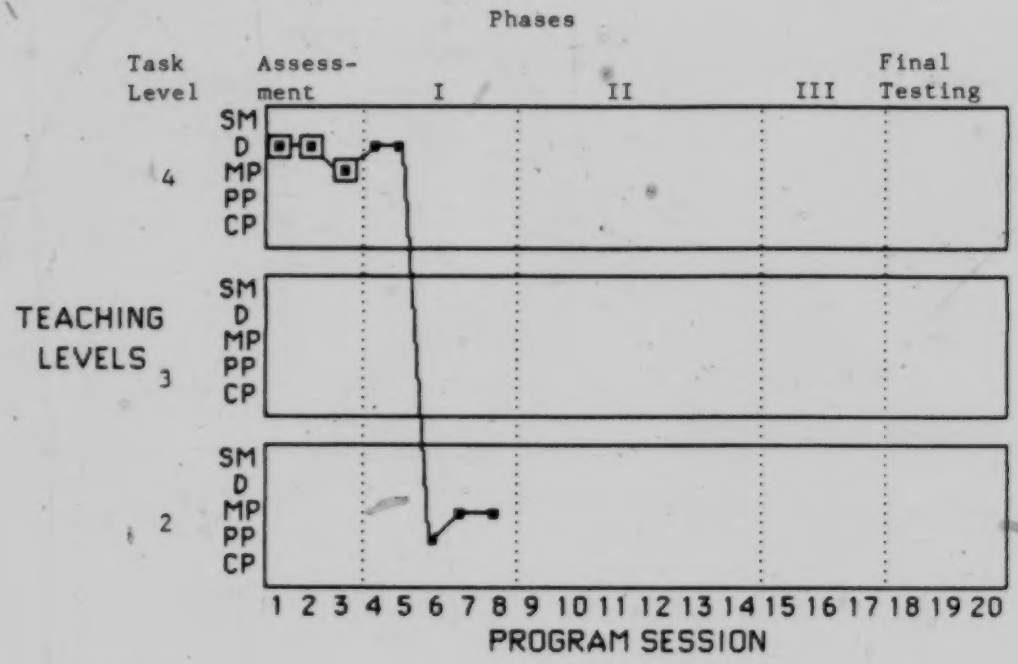


Figure 4.1c. Subject 1: Performance curve for water entry--front dive

Table 4.2

Social Skill Competencies in Each Phase

for Subject 2

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5			
2. Instructional situations				
(a) Individual activities	4			
(b) Group activities	4			
Social Skills				
1. (a) Structured activities	5 but needs constant support			
(b) Recreational activities	2			
Self Help Skills				
1. Finding way	4			
2. Changing for activity	4			
Safety Skills				
1. (a) In the changing room	4			
(b) Around the pool	5			
(c) In the pool	5			

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

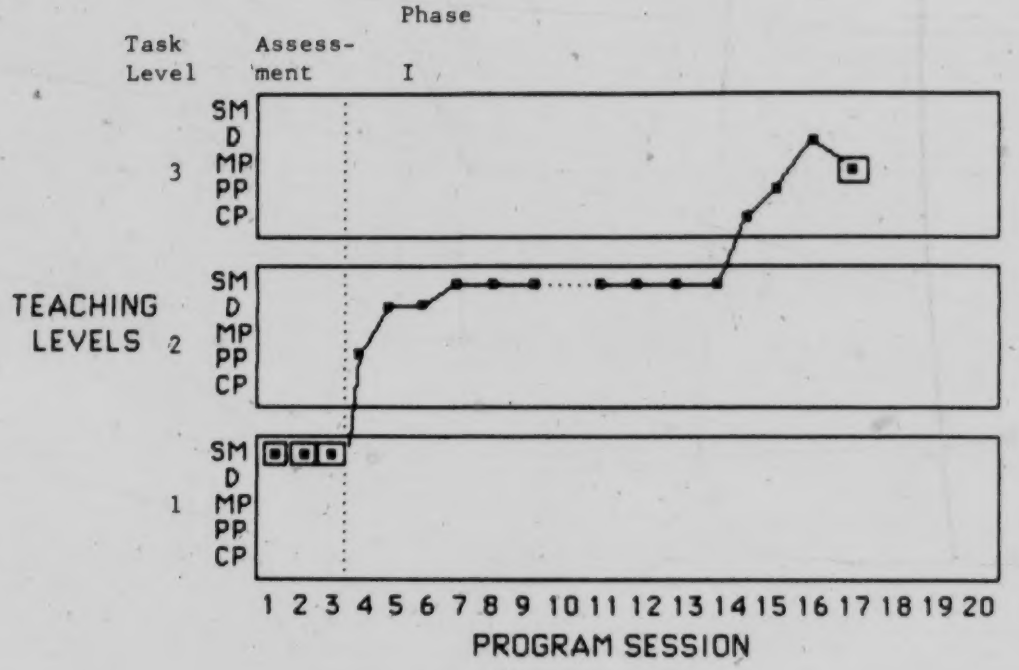


Figure 4.2a. Subject 2: Performance curve for face submersion

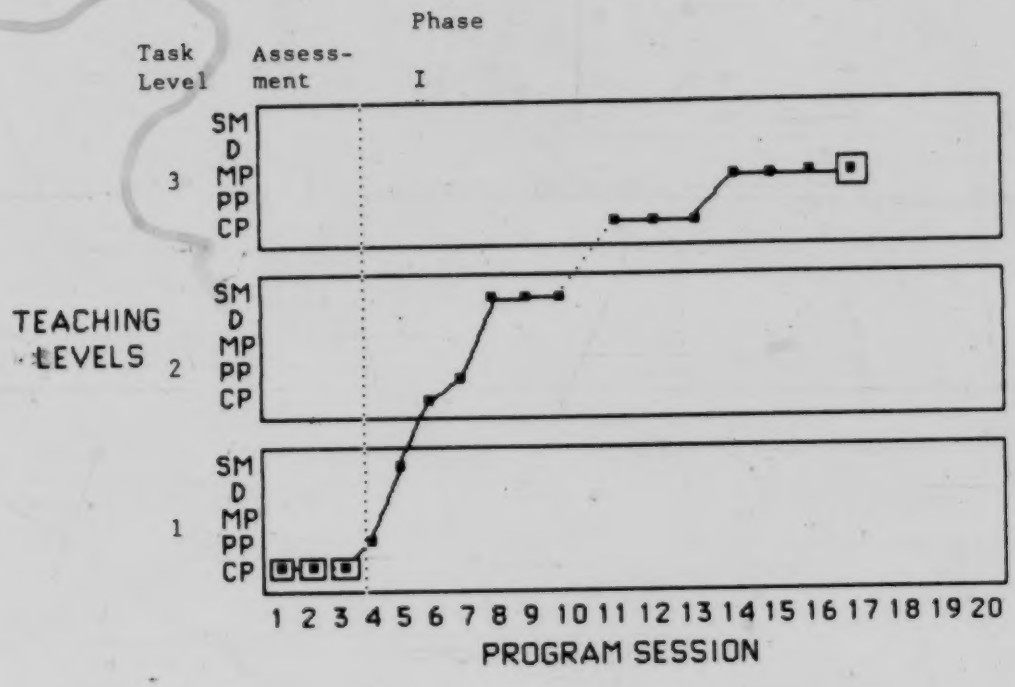


Figure 4.2b. Subject 2: Performance curve for water entry--sit in

Table 4.3

Social Skill Competencies in Each Phase

for Subject 3

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	4			
2. Instructional situations				
(a) Individual activities	5			
(b) Group activities	5			
Social Skills				
1. (a) Structured activities	3			
(b) Recreational activities	2			
Self Help Skills				
1. Finding way	3			
2. Changing for activity	4			
Safety Skills				
1. (a) In the changing room	5			
(b) Around the pool	5			
(c) In the pool	5			

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

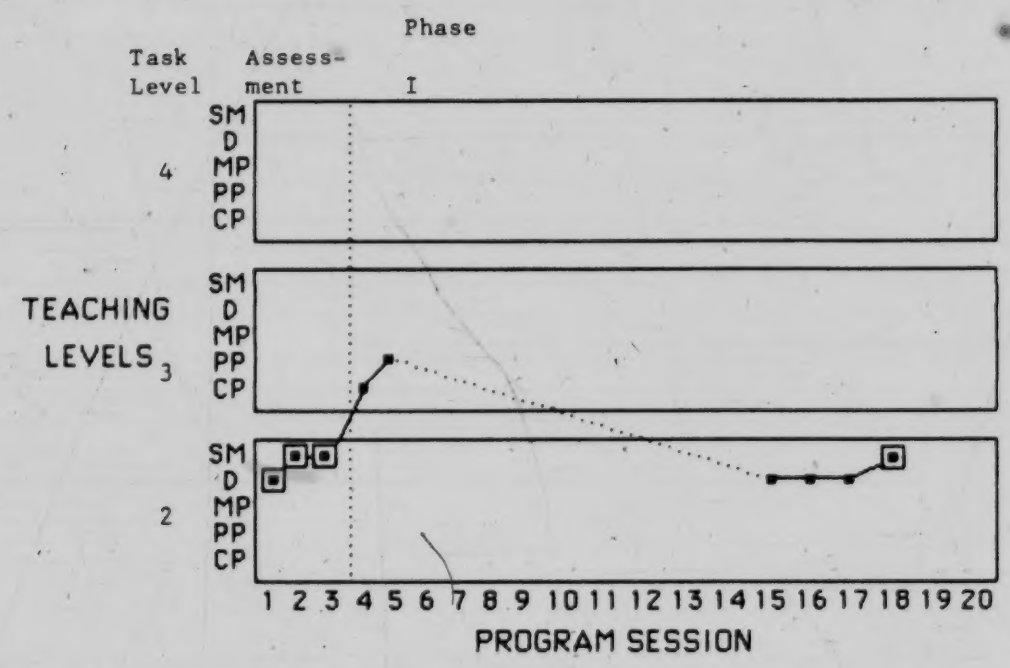


Figure 4.3a. Subject 3: Performance curve for face submersion

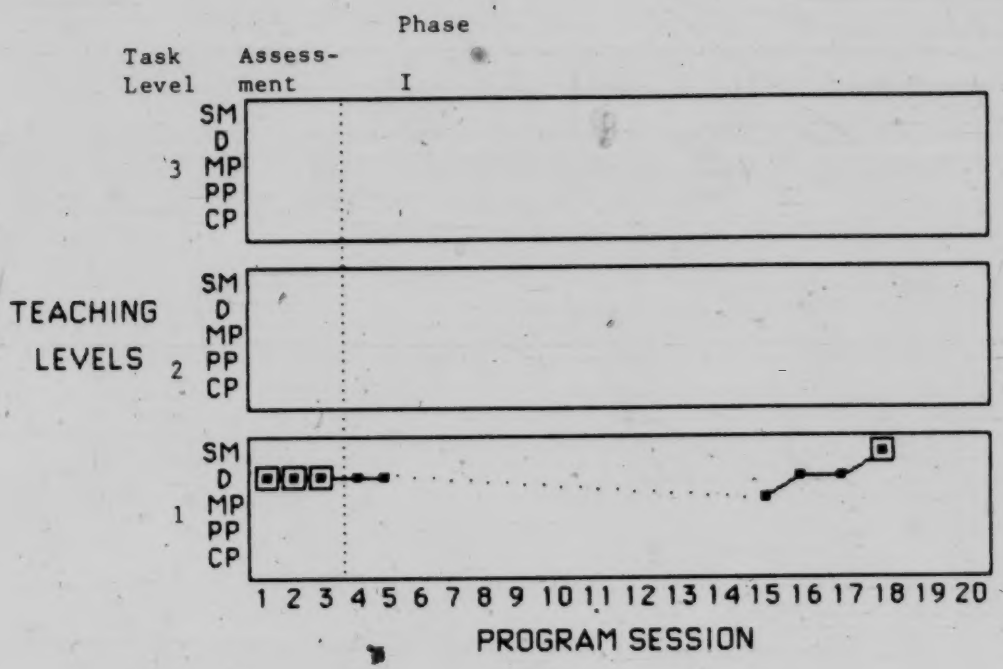


Figure 4.3b. Subject 3: Performance curve for water entry--sit in

Table 4.4

Social Skill Competencies in Each Phase

for Subject 4

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5	5	4	5
2. Instructional situations			a bit of a problem	
(a) Individual activities	5	5	4	some skills (fav. ones) 4
(b) Group activities	5	5	5	4
Social Skills				
1. (a) Structured activities	5	4	4	4
(b) Recreational activities	3	5	4	4
Self Help Skills				
1. Finding way	5	5	5	5
2. Changing for activity	5	5	5	4
Safety Skills				
1. (a) In the changing room	5	5	5	5
(b) Around the pool	4	4	5	4-
(c) In the pool	4	4		3-

Comment: Excitable, splashes, short attention span

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

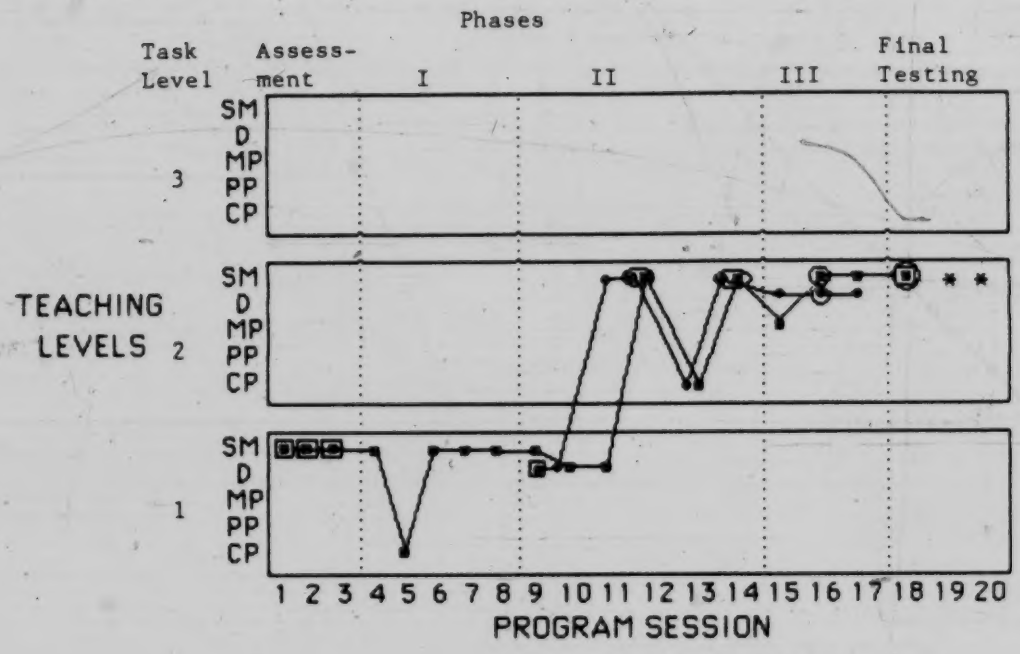


Figure 4.4a. Subject 4: Performance curve for back propulsion--kick

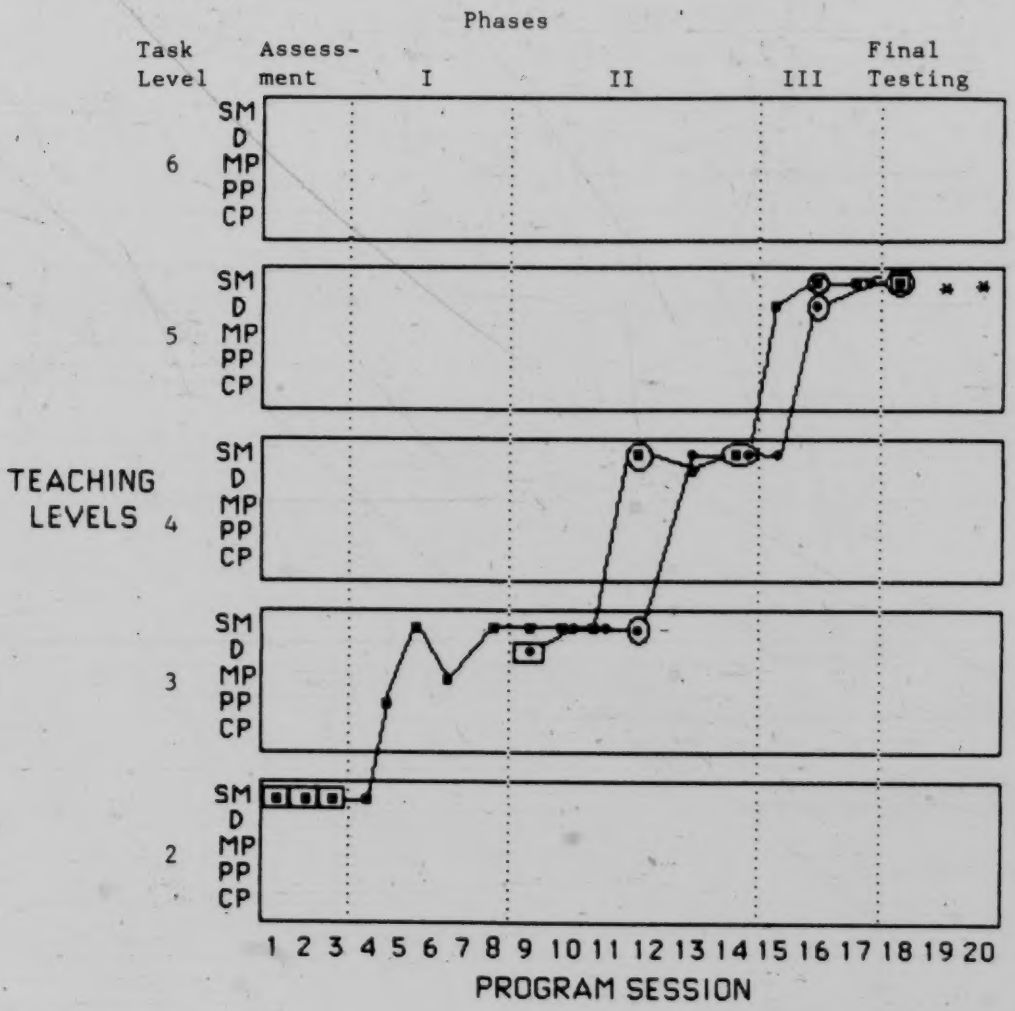


Figure 4.4b. Subject 4: Performance curve for front dive

Table 4.5

Social Skill Competencies in Each Phase

for Subject 5

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5			
2. Instructional situations				
(a) Individual activities	3			
(b) Group activities	4			
Social Skills				
1. (a) Structured activities	3			
(b) Recreational activities	4			
Self Help Skills				
1. Finding way	2			
2. Changing for activity	3			
Safety Skills				
1. (a) In the changing room	3-4			
(b) Around the pool	5			
(c) In the pool	5			

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

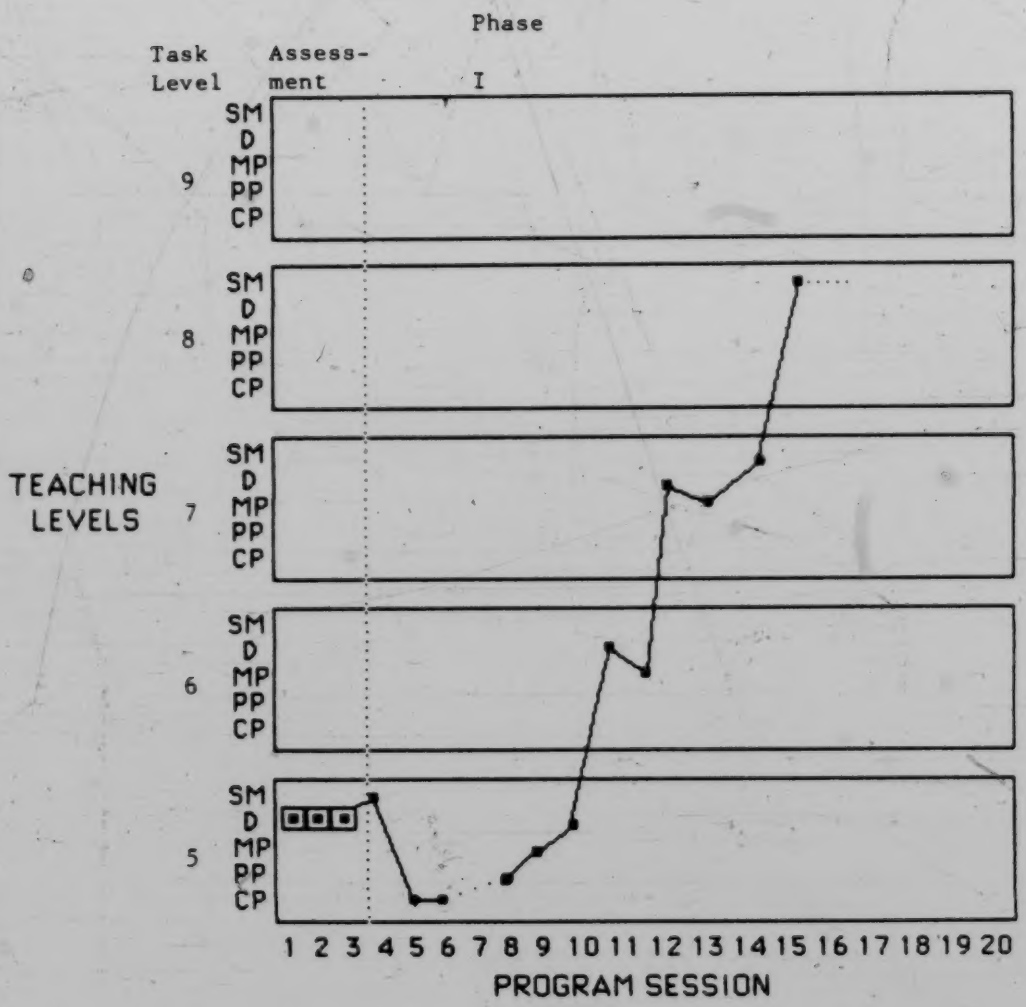


Figure 4.5a. Subject 5: Performance curve for breath control

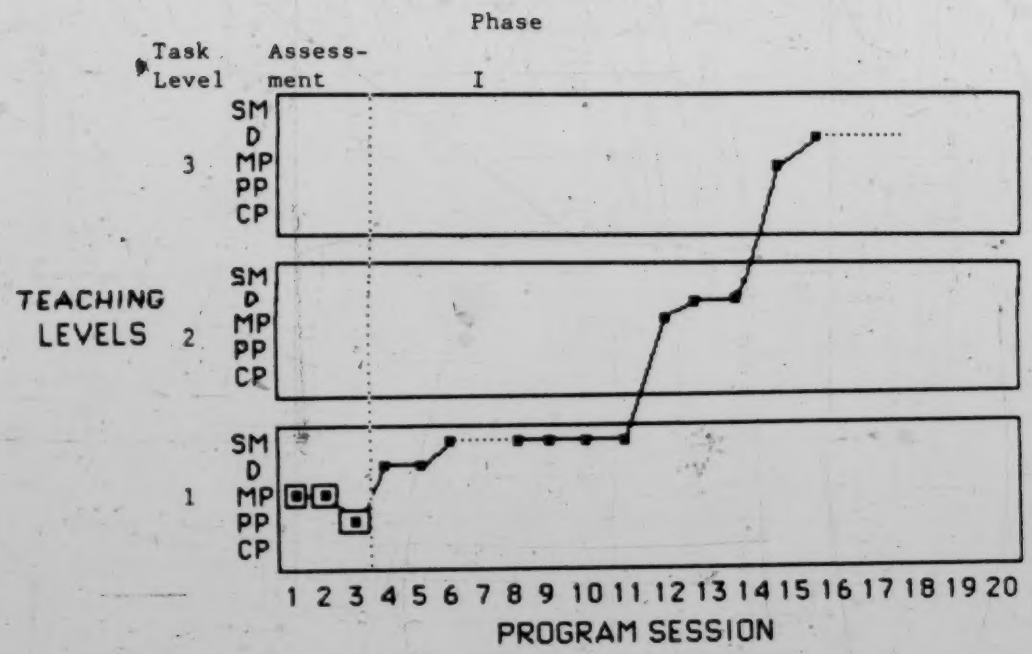


Figure 4.5b. Subject 5: Performance curve for front float

Table 4.6

Social Skill Competencies in Each Phase

for Subject 6

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5	5	5	5
2. Instructional situations				
(a) Individual activities	4	5	5	5
(b) Group activities	5	4	4	5
Social Skills				
1. (a) Structured activities	5	5	5	4
(b) Recreational activities	5	5	5	5
Self Help Skills				
1. Finding way	5	5	5	5
2. Changing for activity	5	5	5	4
Safety Skills				
1. (a) In the changing room	5	4	4	4
(b) Around the pool	5	5	3	4
(c) In the pool				

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

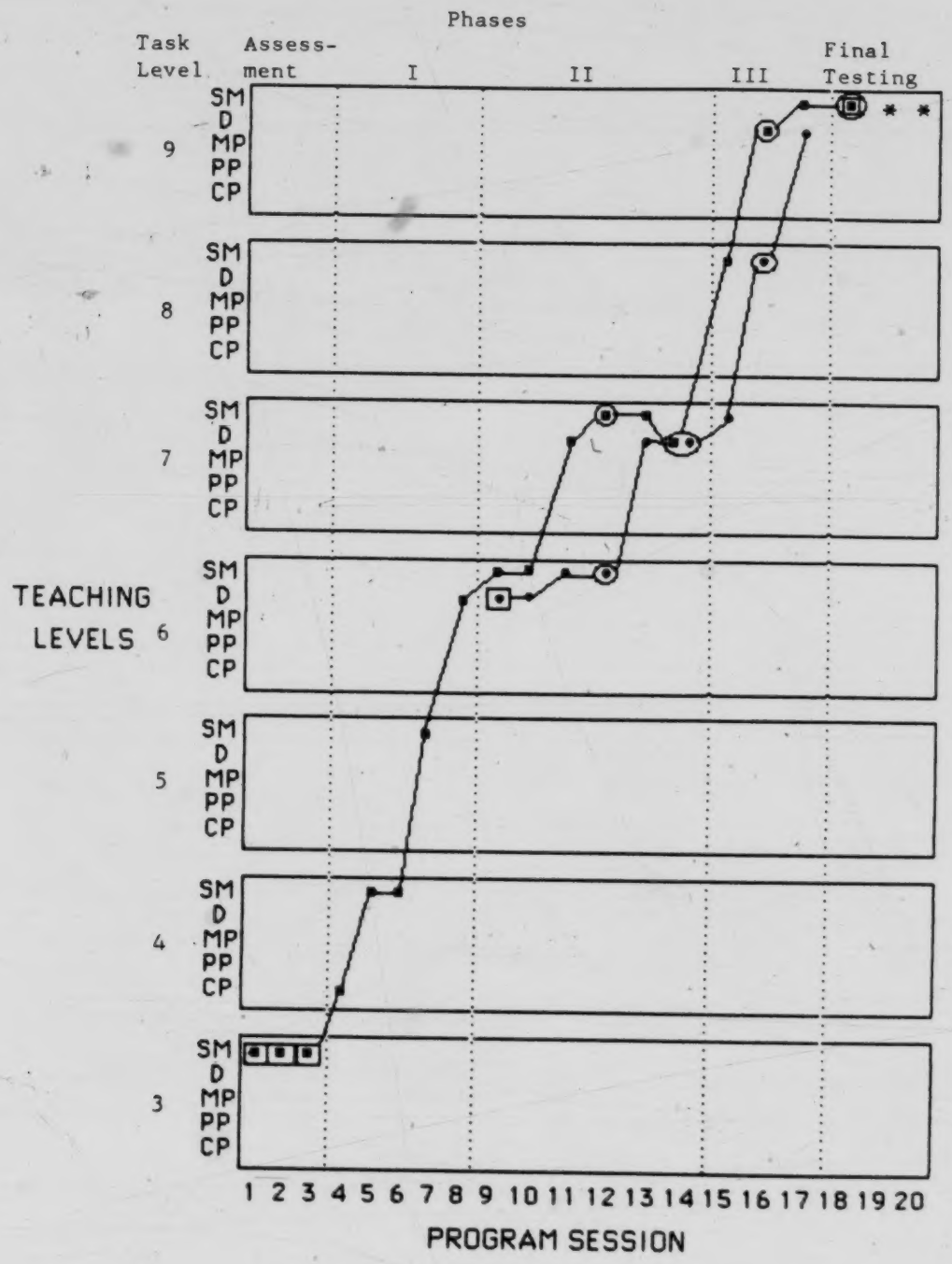


Figure 4.6a. Subject 6: Performance curve for front propulsion--arm action

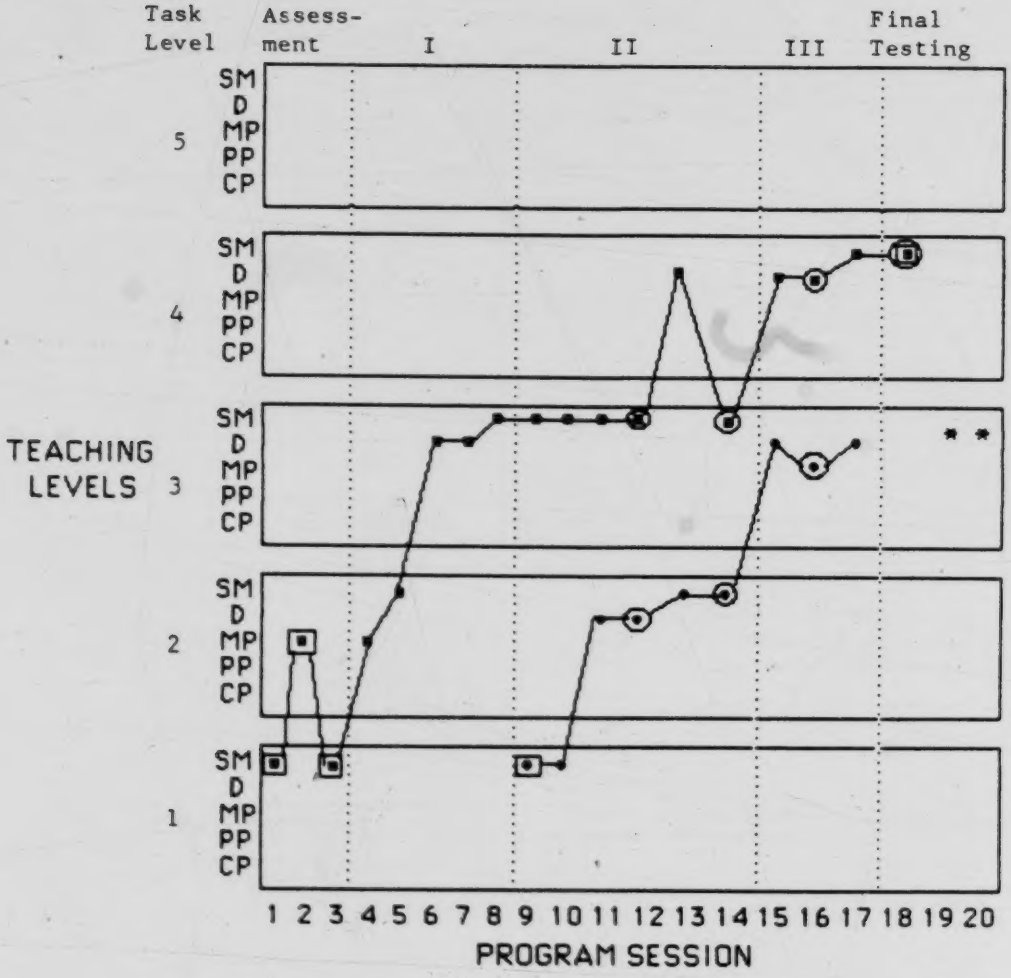


Figure 4.6b. Subject 6: Performance curve for water entry--front dive

Table 4.7

Social Skill Competencies in Each Phase

for Subject 7

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5			
2. Instructional situations				
(a) Individual activities	*3			
(b) Group activities	5			
Social Skills				
1. (a) Structured activities	5			
(b) Recreational activities	4			
Self Help Skills				
1. Finding way	4			
2. Changing for activity	4			
Safety Skills				
1. (a) In the changing room	3			
(b) Around the pool	4			
(c) In the pool	5			

* Weak

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

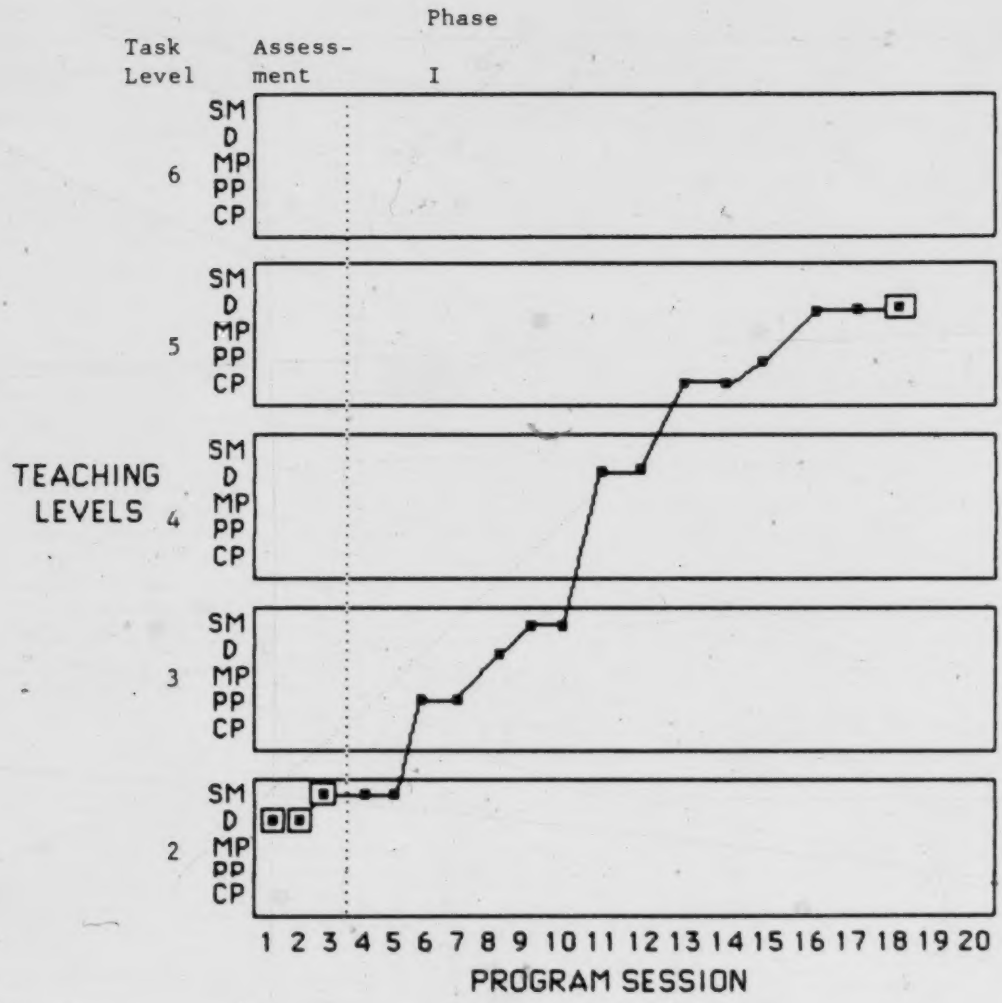


Figure 4.7a. Subject 7: Performance curve for front propulsion--arm action

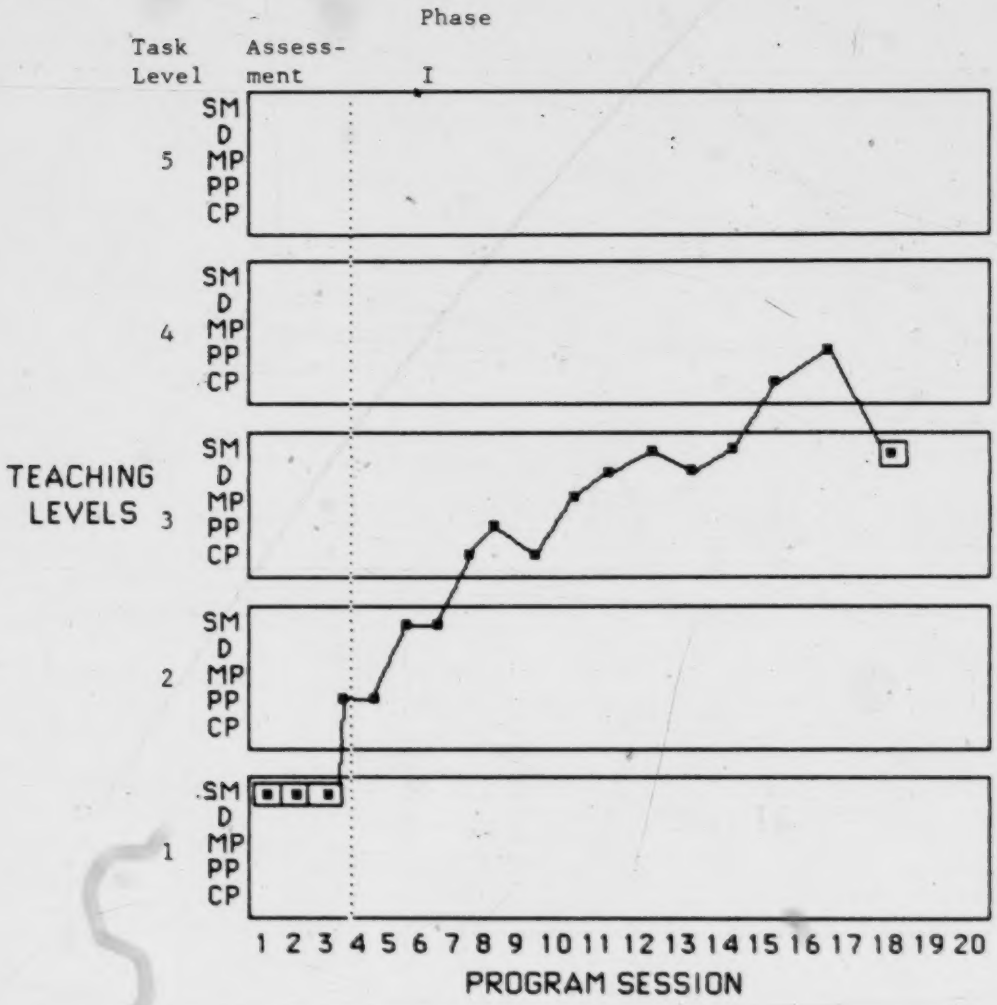


Figure 4.7b. Subject 7: Performance curve for water entry--jump in

Table 4.8

Social Skill Competencies in Each Phase

for Subject 8

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5	5	5	5
2. Instructional situations				
(a) Individual activities	5	3	5	3
(b) Group activities	5	5	5	5
Social Skills				
1. (a) Structured activities	5	5	5	5
(b) Recreational activities	5	5	5	5
Self Help Skills				
1. Finding way	5	5	5	5
2. Changing for activity	5	4	4	4-5
Safety Skills				
1. (a) In the changing room	5	5	4	5
(b) Around the pool	5	5	5	5
(c) In the pool	5	5	4	3

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

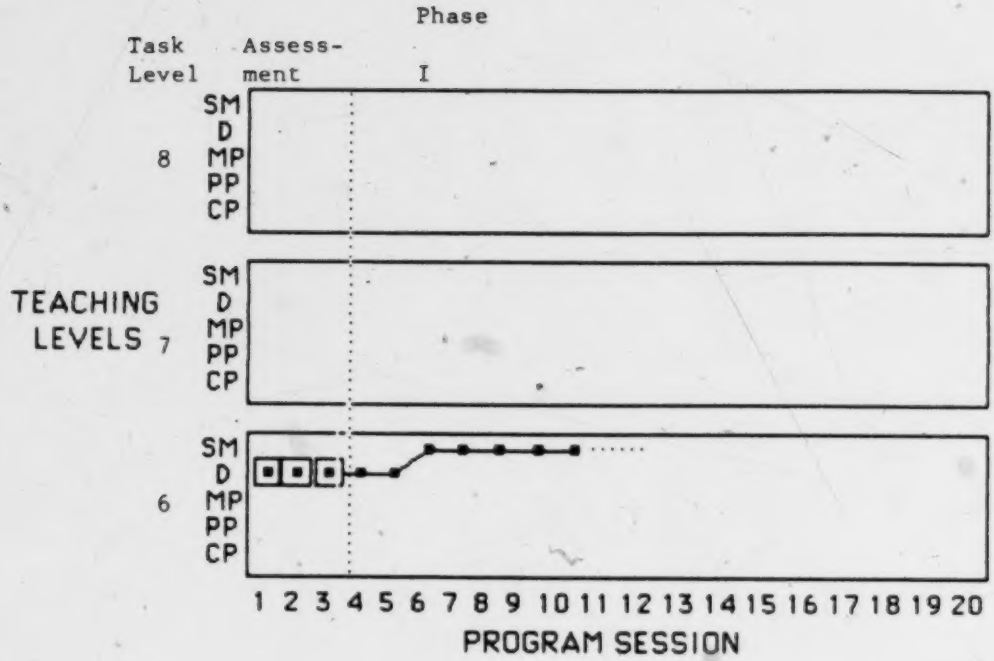


Figure 4.8a. Subject 8: Performance curve for front float

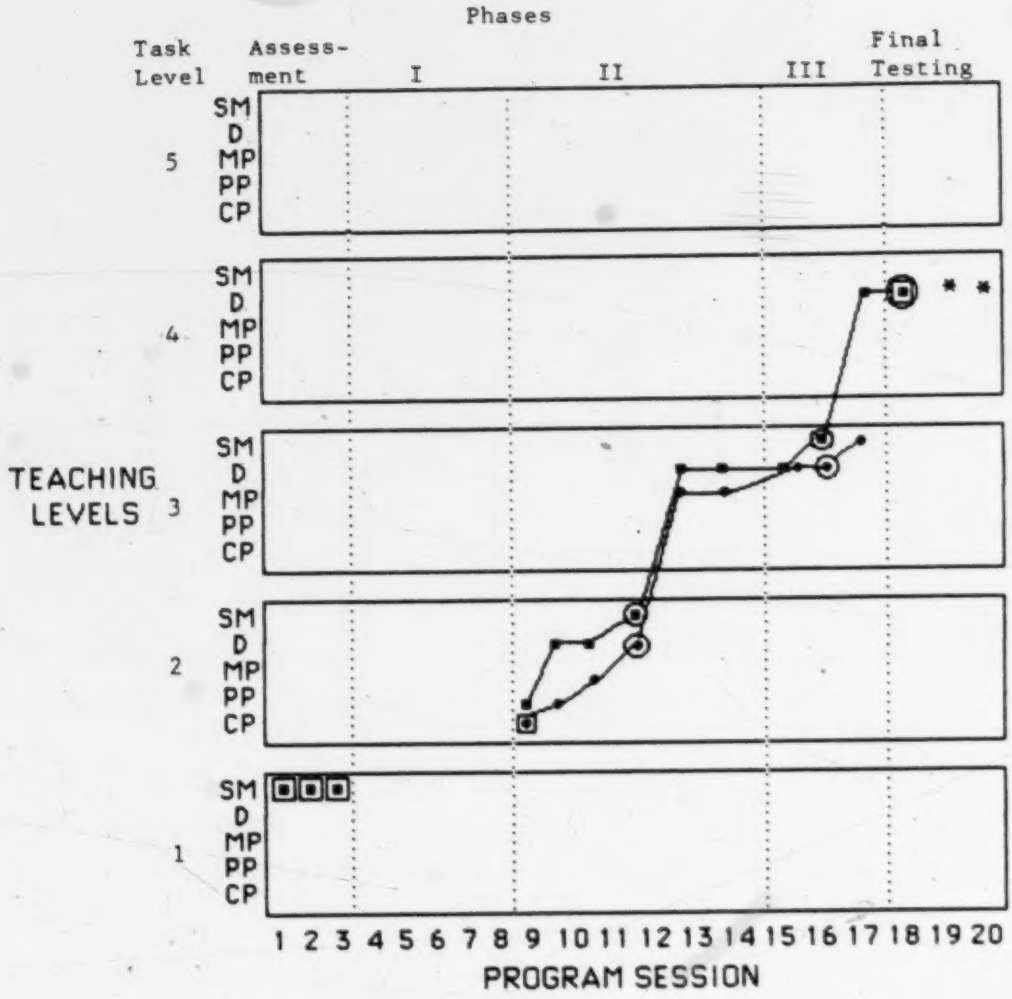


Figure 4.8b. Subject 8: Performance curve for front propulsion--kick

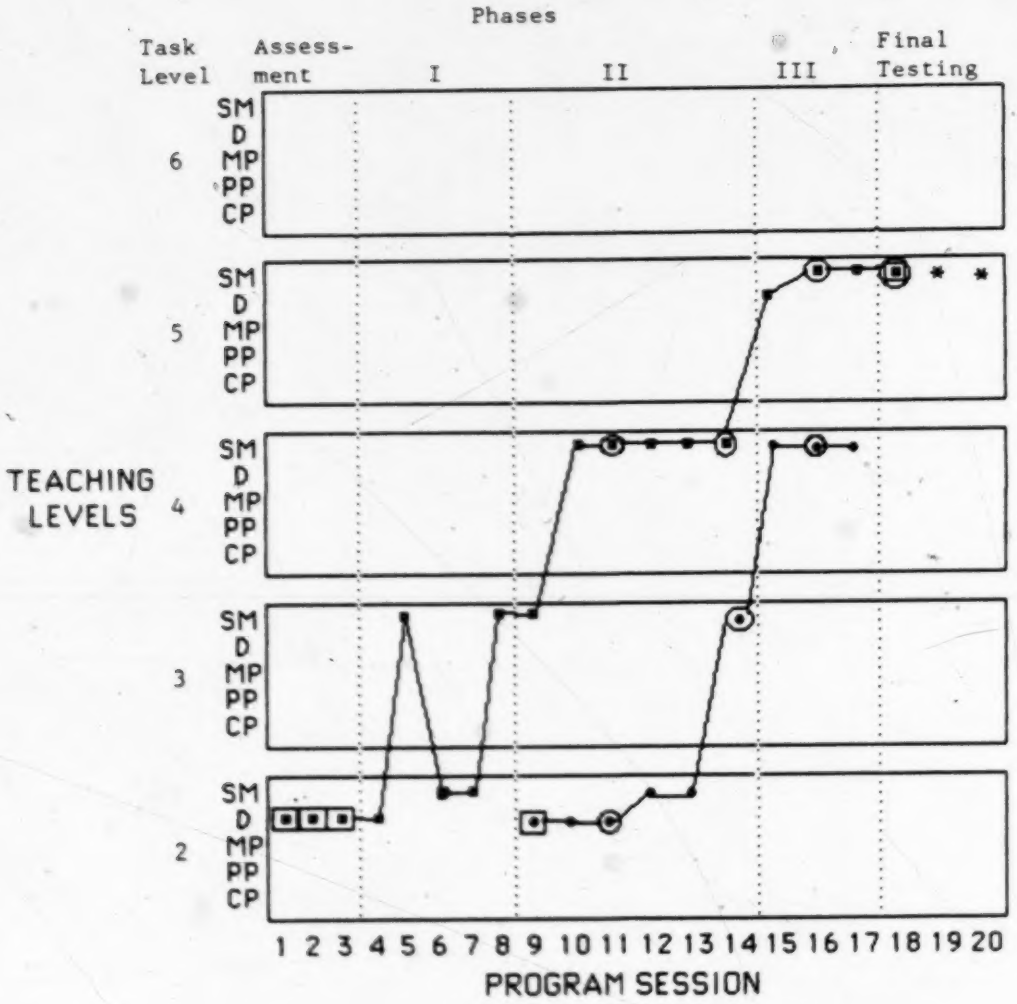


Figure 4.8c. Subject 8: Performance curve for water entry--front dive

Table 4.9

Social Skill Competencies in Each Phase

for Subject 9

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5			
2. Instructional situations				
(a) Individual activities	1			
(b) Group activities	4			
Social Skills				
1. (a) Structured activities	4			
(b) Recreational activities	1			
Self Help Skills				
1. Finding way	3			
2. Changing for activity	4			
Safety Skills				
1. (a) In the changing room	3			
(b) Around the pool	5			
(c) In the pool	5			

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

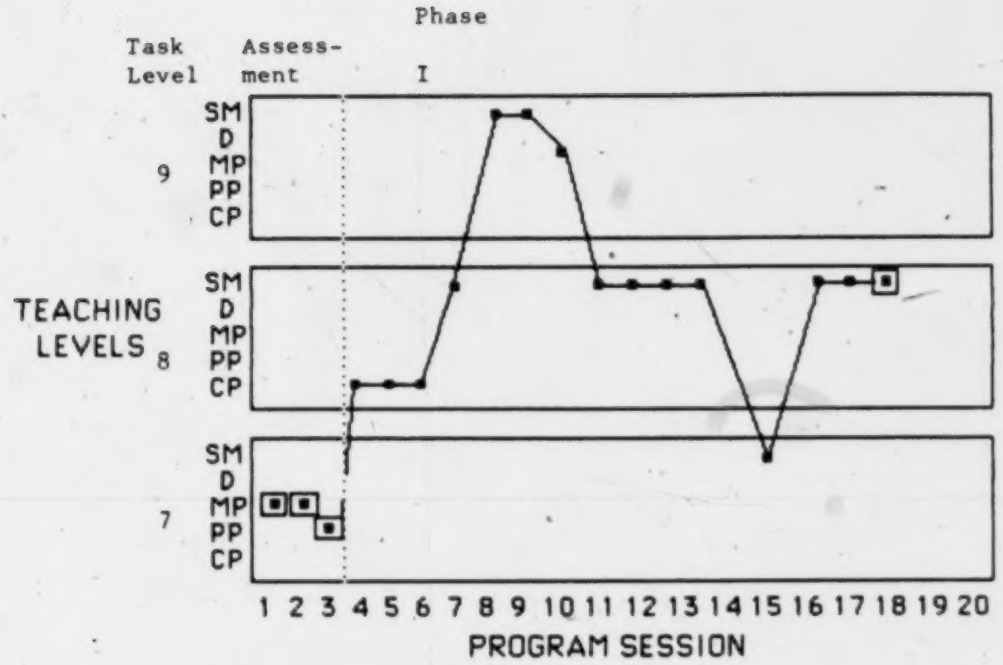


Figure 4.9a. Subject 9: Performance curve for breath control

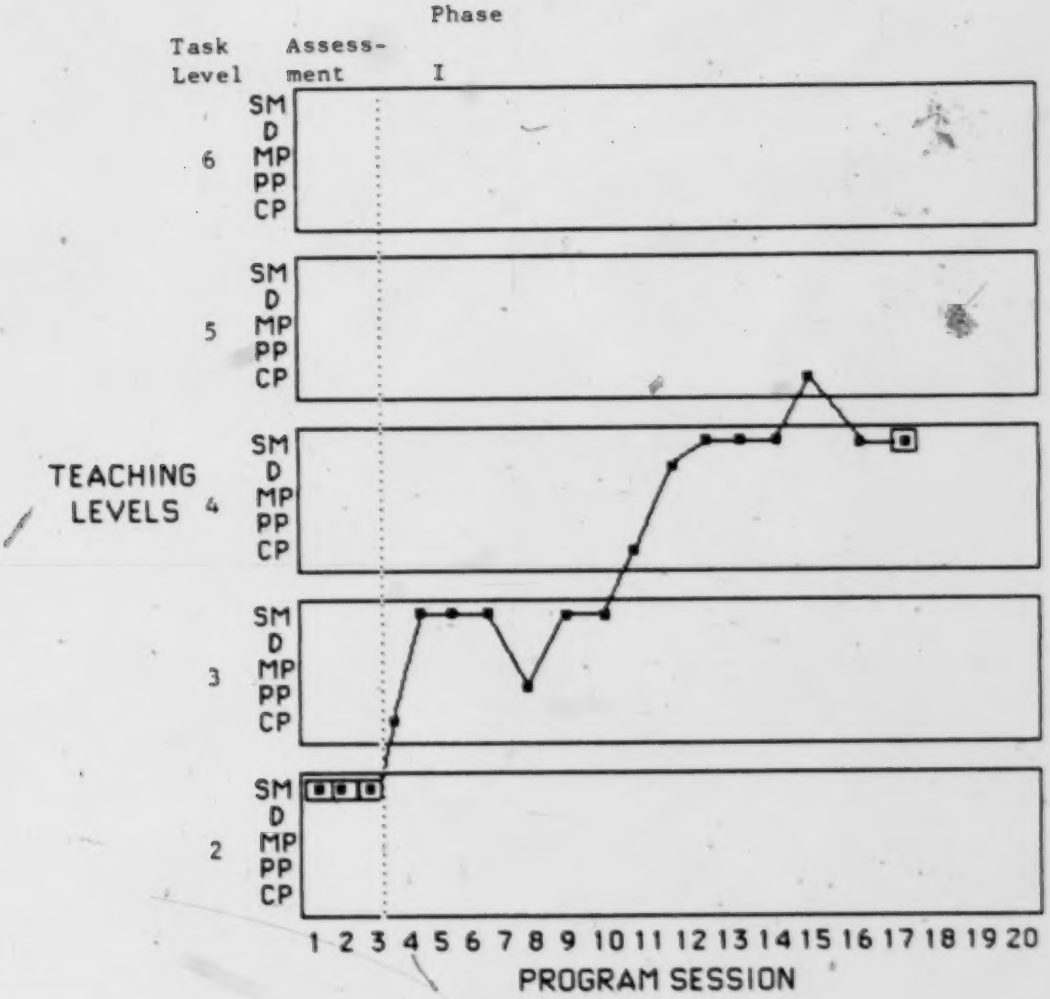


Figure 4.9b. Subject 9: Performance curve for front float

Table 4.10

Social Skill Competencies in Each Phase

for Subject 10

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5	5	5	5
2. Instructional situations				
(a) Individual activities	4	4	*3	4
(b) Group activities	5	5	4	5
Social Skills				
1. (a) Structured activities	4	5	4	4
(b) Recreational activities	4	4	4	5
Self Help Skills				
1. Finding way	5	5	5	5
2. Changing for activity	5	5	5	5
Safety Skills				
1. (a) In the changing room	5	5	5	5
(b) Around the pool	4	*4	4	4
(c) In the pool	5	*4	4	4+

* Weak areas

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

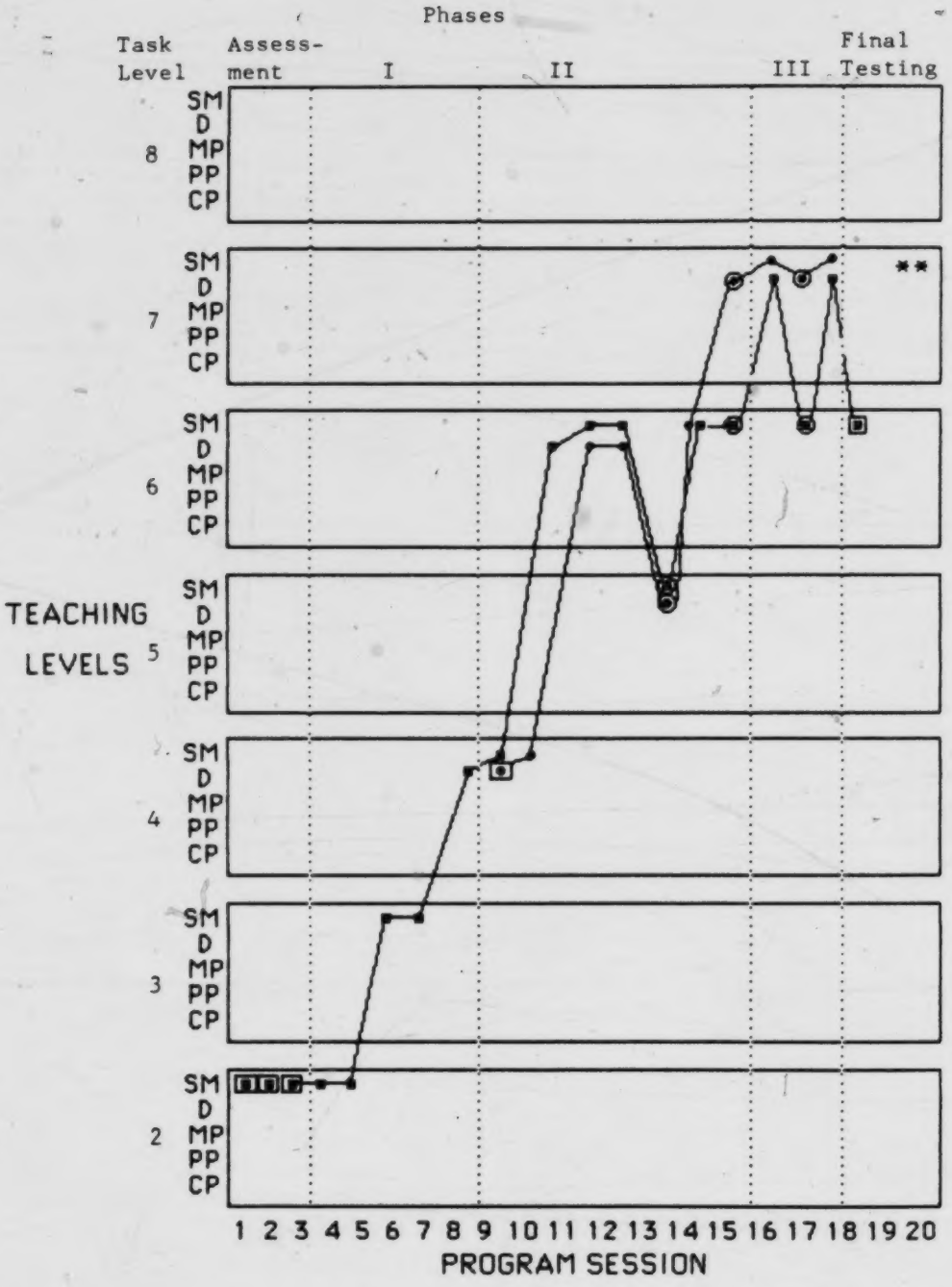


Figure 4.10a. Subject 10: Performance curve for front propulsion--arm action

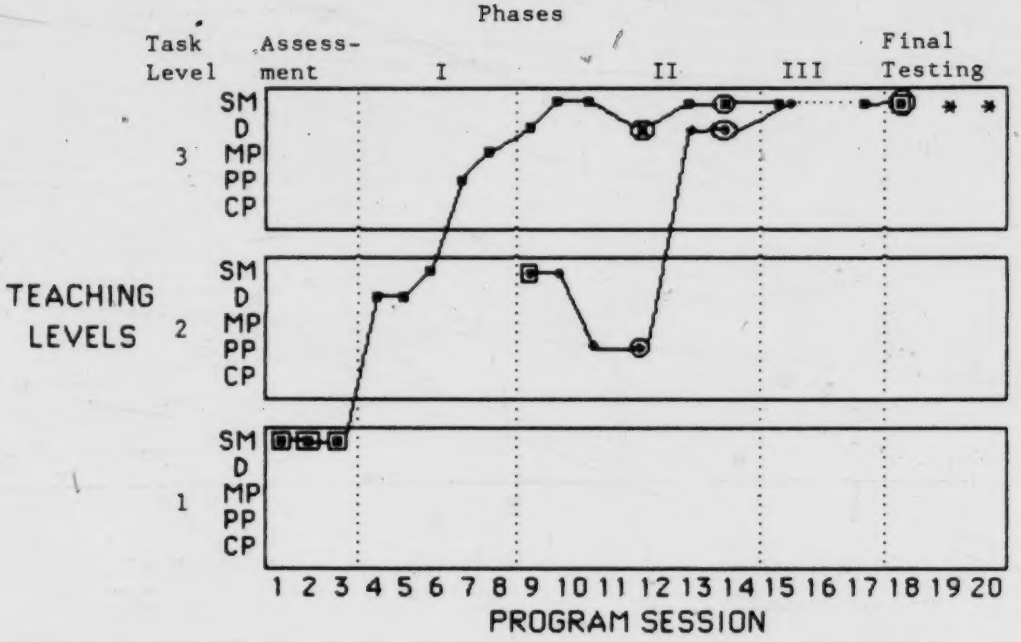


Figure 4.10b. Subject 10: Performance curve for front propulsion--kick

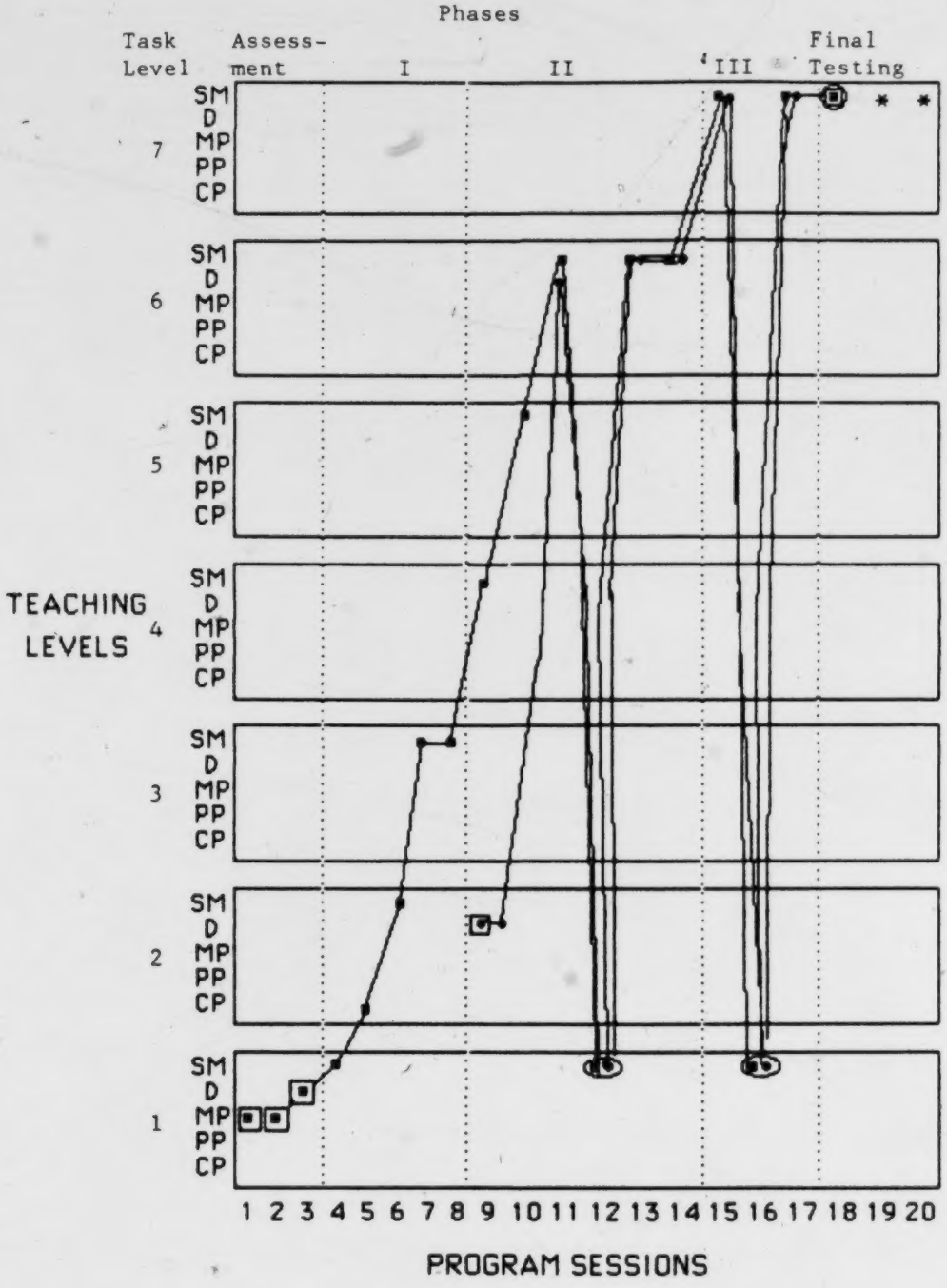


Figure 4.10c. Subject 10: Performance curve for water entry--front dive

Table 4. 11

Social Skill Competencies in Each Phase

for Subject 11

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5			
2. Instructional situations				
(a) Individual activities	4			
(b) Group activities	3			
Social Skills				
1. (a) Structured activities	3			
(b) Recreational activities	4			
Self Help Skills				
1. Finding way	4			
2. Changing for activity	5			
Safety Skills				
1. (a) In the changing room	4			
(b) Around the pool	5			
(c) In the pool	5			

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

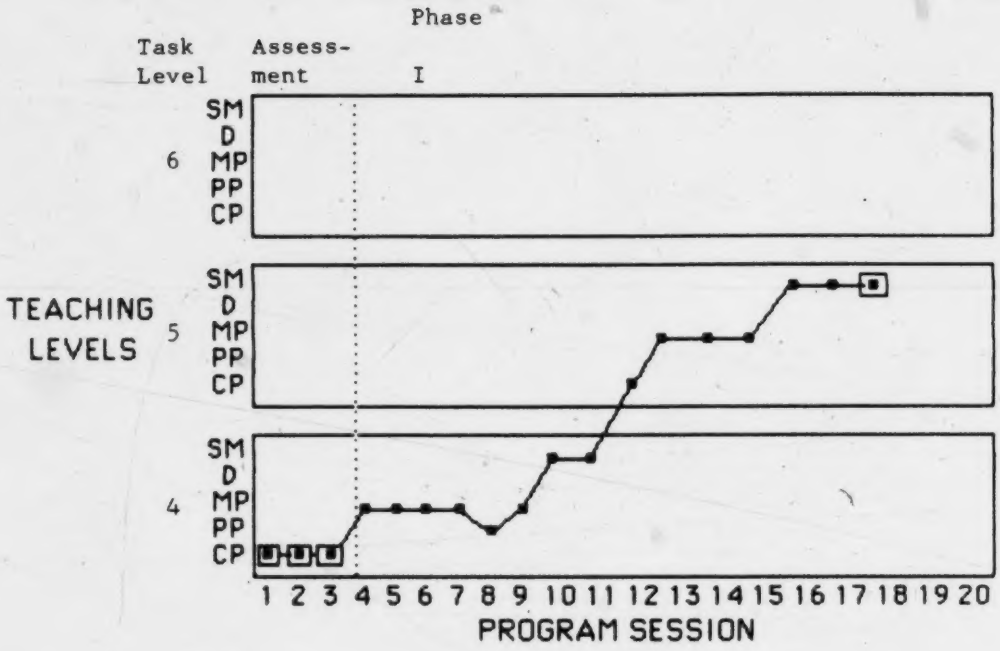


Figure 4.11a. Subject 11: Performance curve for back float

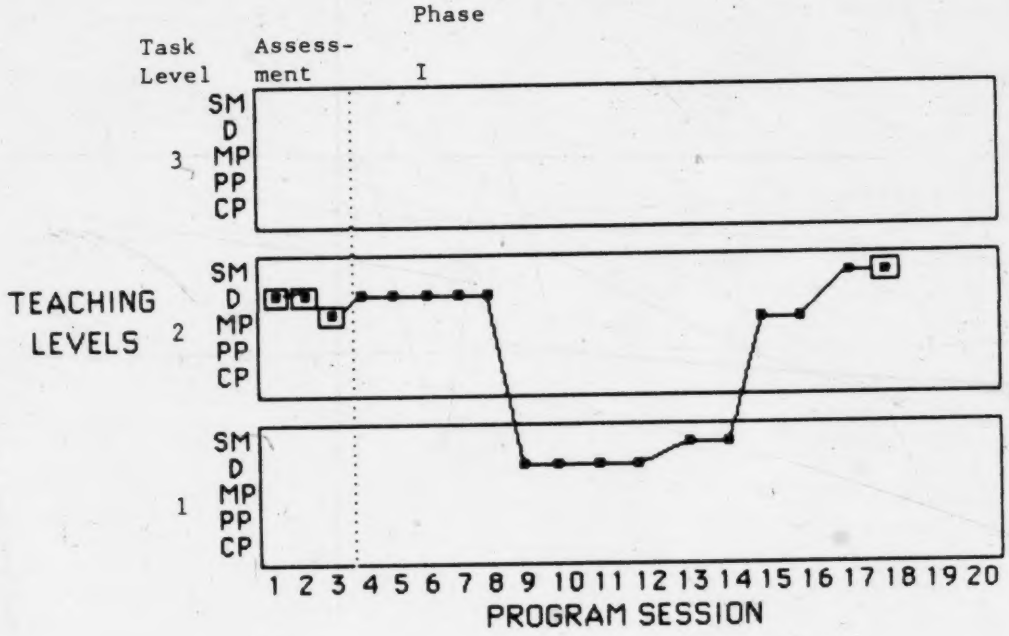


Figure 4.11b. Subject 11: Performance curve for water entry--front dive

Table 4.12

Social Skill Competencies in Each Phase

for Subject 12

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5			
2. Instructional situations				
(a) Individual activities	5			
(b) Group activities	4			
Social Skills				
1. (a) Structured activities	4			
(b) Recreational activities	3			
Self Help Skills				
1. Finding way	1			
2. Changing for activity	4			
Safety Skills				
1. (a) In the changing room	5			
(b) Around the pool	5			
(c) In the pool	5			

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

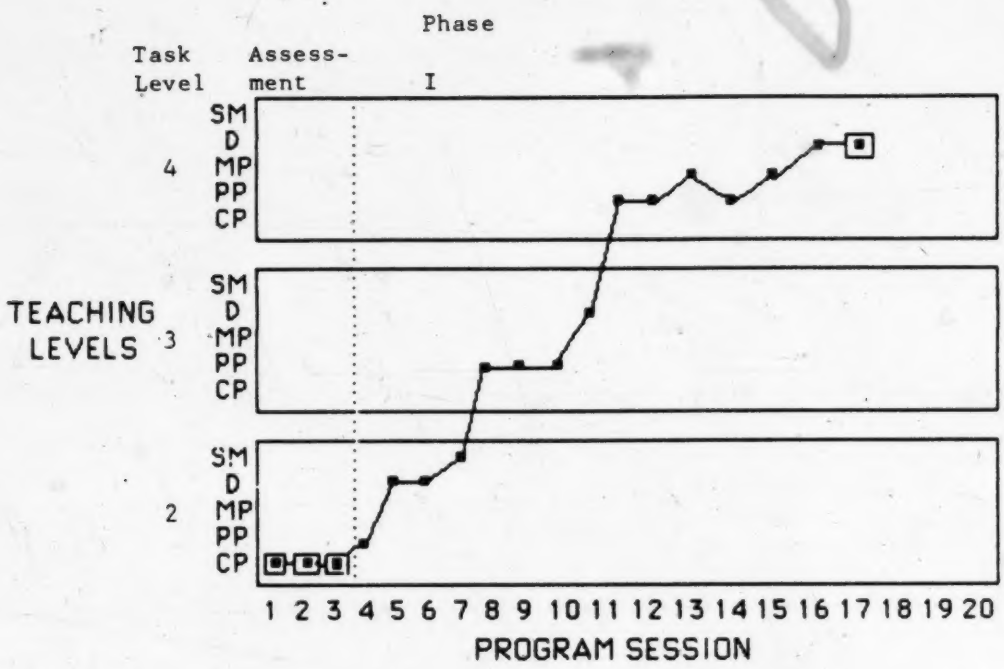


Figure 4.12a. Subject 12: Performance curve for face submersion

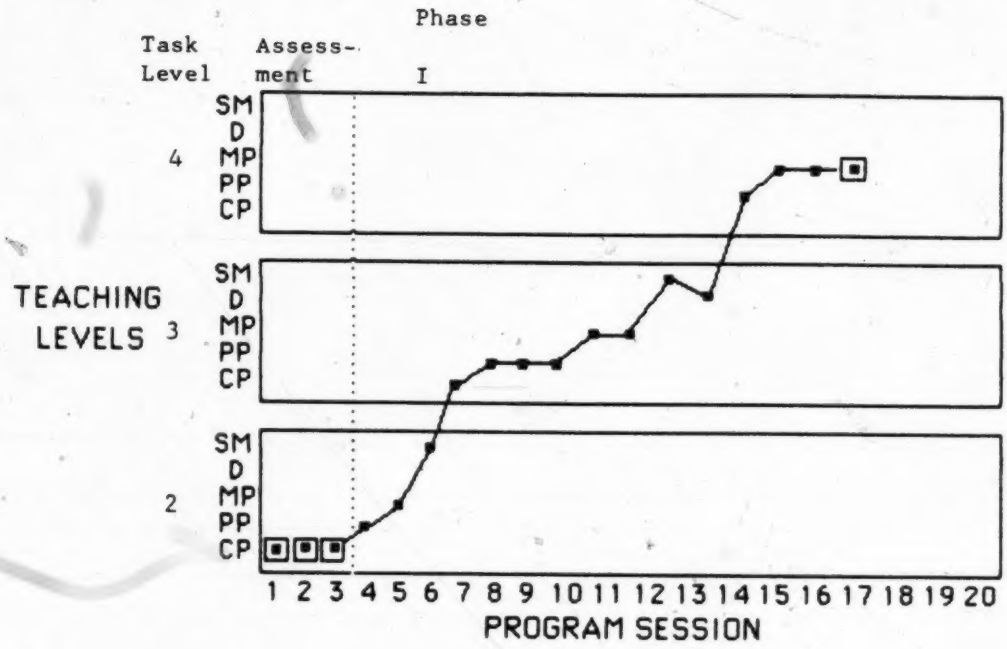


Figure 4.12b. Subject 12: Performance curve for back float

Table 4. 13

Social Skill Competencies in Each Phase

for Subject 13

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5	5	4	5
2. Instructional situations				
(a) Individual activities	4	4	4	4
(b) Group activities	5	5	5	5
Social Skills				
1. (a) Structured activities	4	4	4	4
(b) Recreational activities	4	4	4	4
Self Help Skills				
1. Finding way	5	5	5	5
2. Changing for activity	5	5	5	5
Safety Skills				
1. (a) In the changing room	5	5	5	5
(b) Around the pool	5	5	5	5
(c) In the pool	5	5	5	5

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

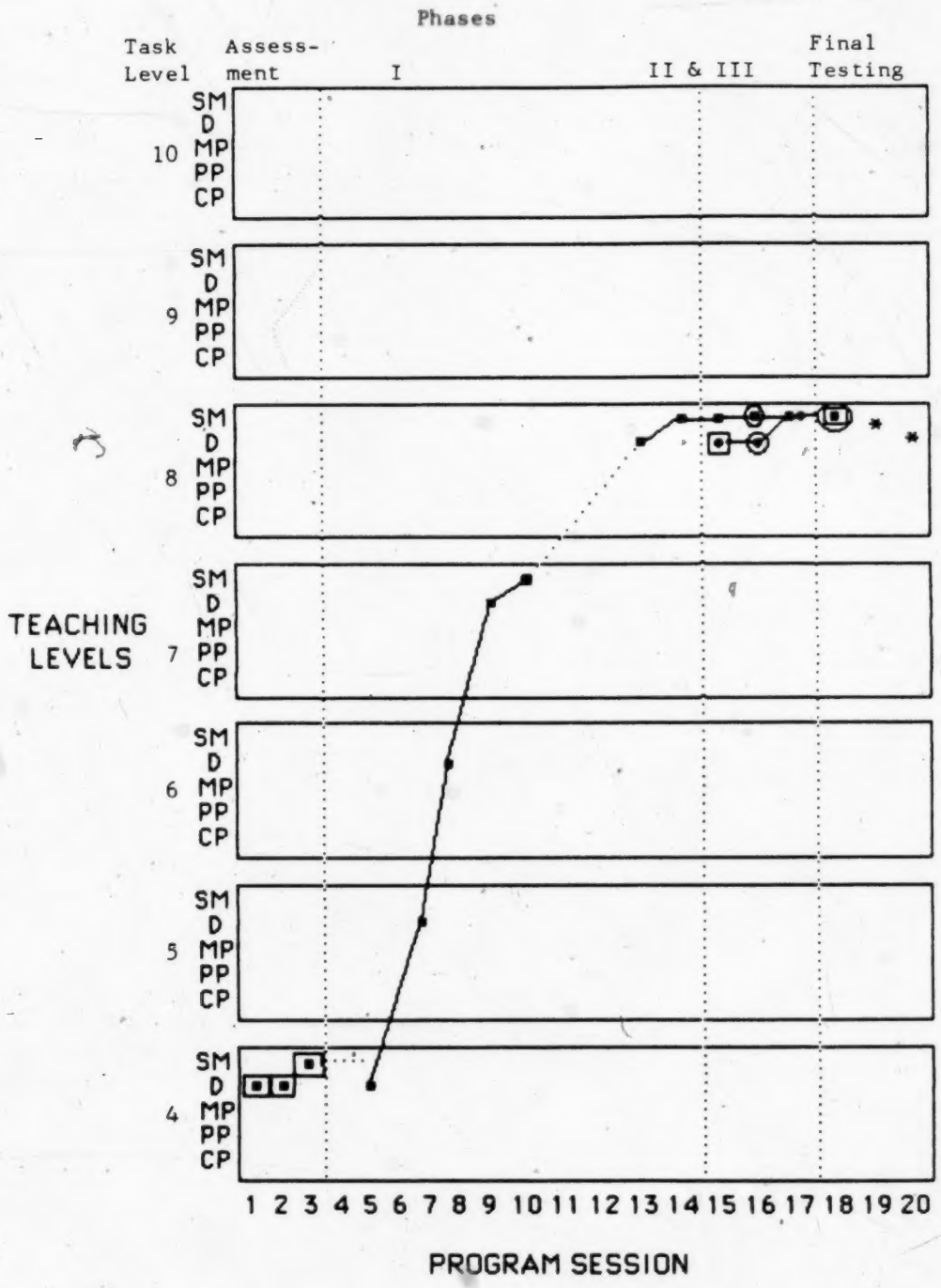


Figure 4.13a. Subject 13: Performance curve for breath control

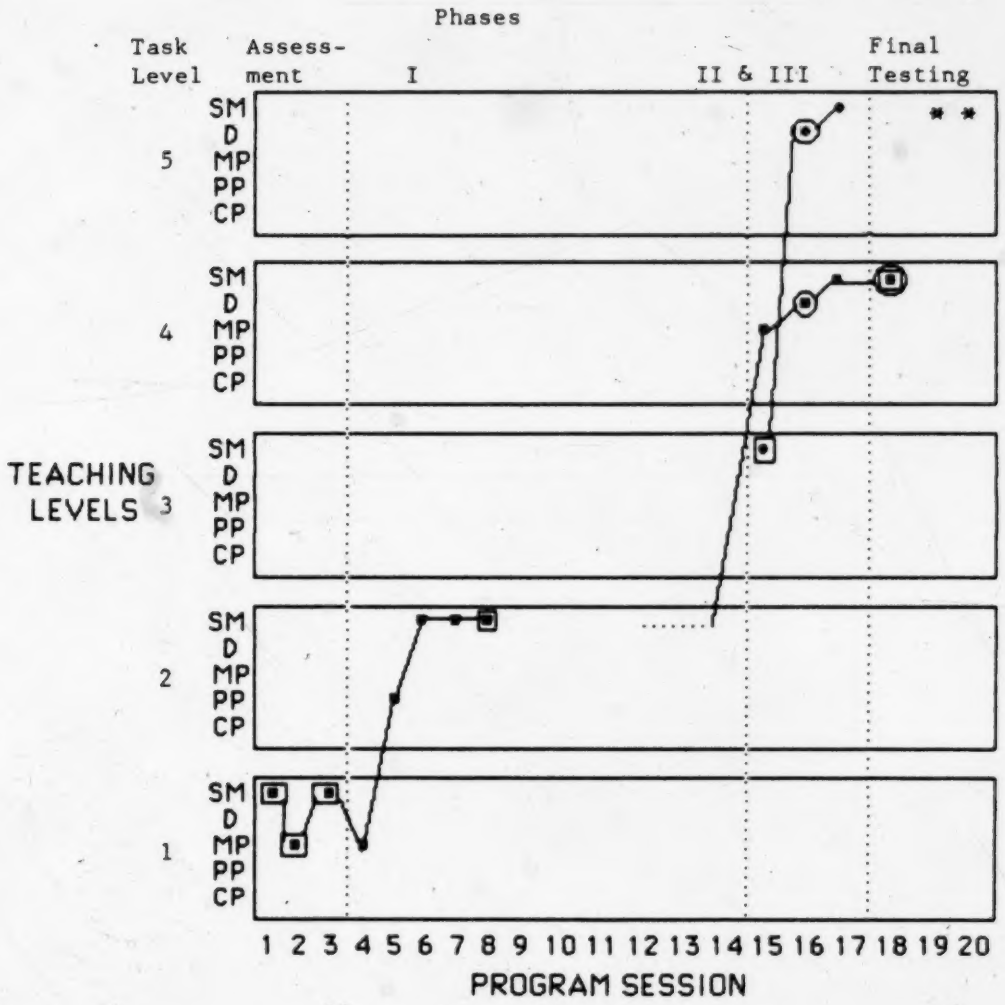


Figure 4.13b. Subject 13: Performance curve for front float

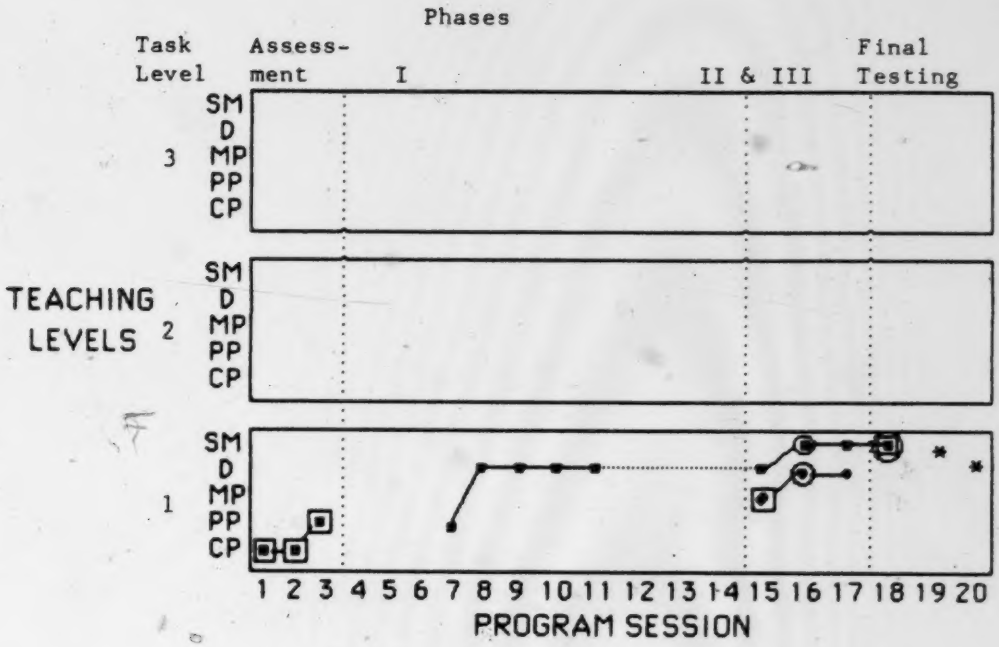


Figure 4.13c. Subject 13: Performance curve for water entry--front dive

Table 4.14

Social Skill Competencies in Each Phase

for Subject 14

Skill	Frequency of Meeting Criteria Within Phase			
	I	IIa	IIb	III
Behavior Skills				
1. Around the pool	5	5	4	5
2. Instructional situations				
(a) Individual activities	4	4	4	3
(b) Group activities	5	5	5	5
Social Skills				
1. (a) Structured activities	5	5	4	4
(b) Recreational activities	5	4	5	5
Self Help Skills				
1. Finding way	5	5	5	5
2. Changing for activity	5	5	5	5
Safety Skills				
1. (a) In the changing room	5	5	5	5
(b) Around the pool	5	5	5	5
(c) In the pool	5	5	5	5

Frequency 1 Never
2 Rarely
3 Occasionally
4 Frequently
5 Always

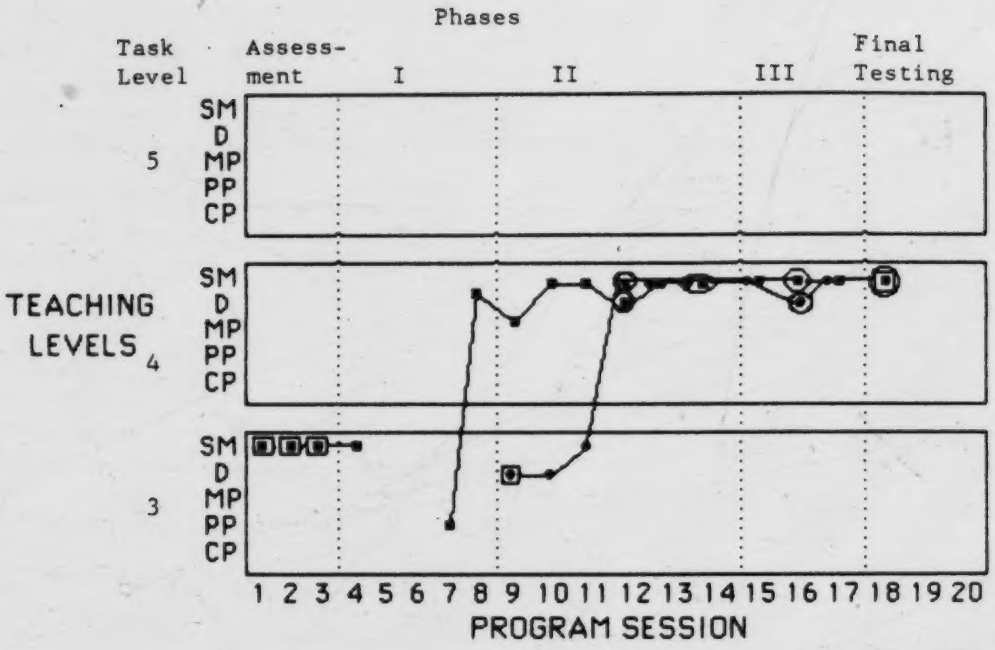


Figure 4.14a. Subject 14: Performance curve for front propulsion--kick

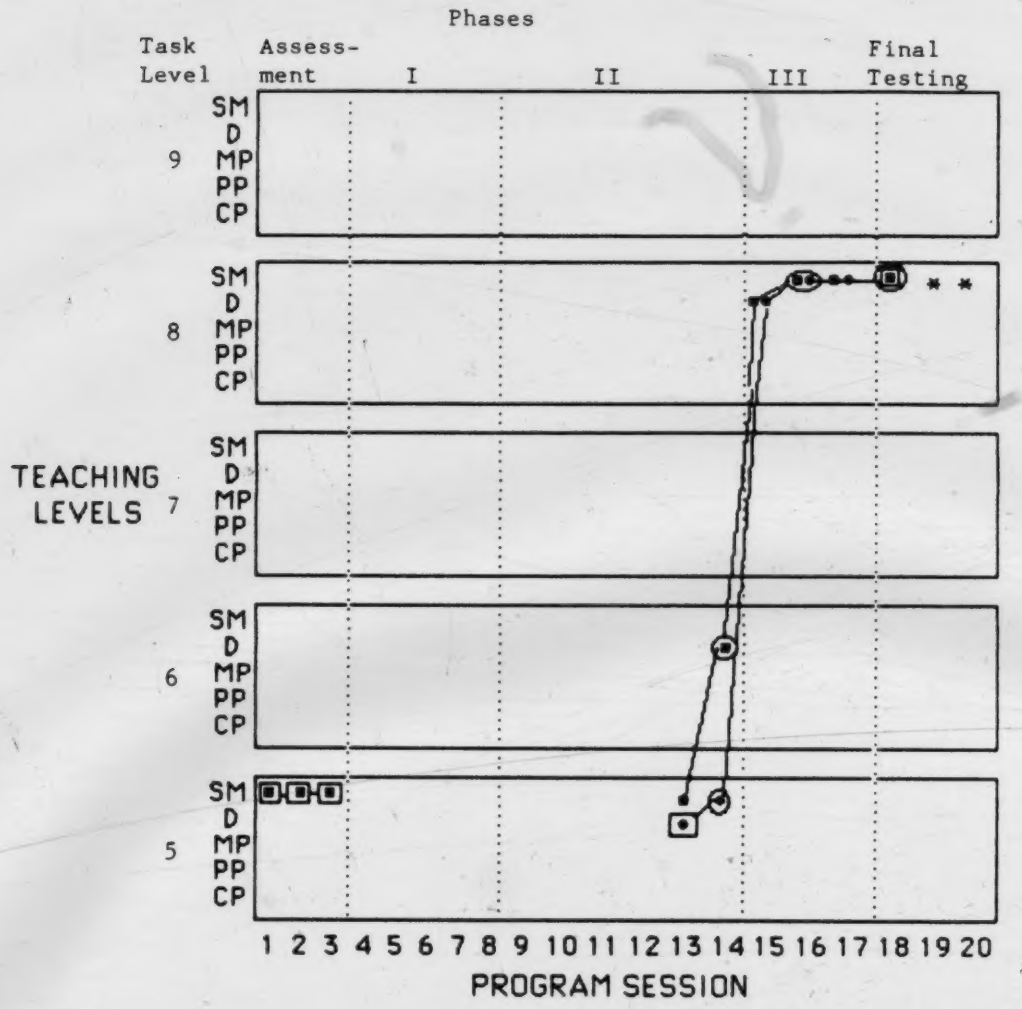


Figure 4.14b. Subject 14: Performance curve for front propulsion--arm action

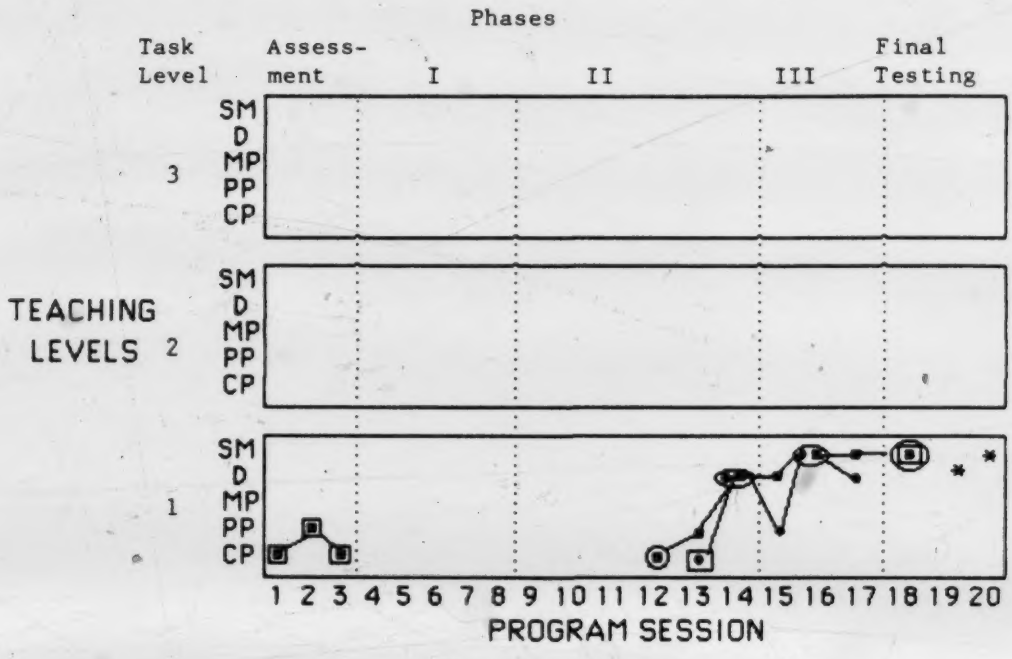


Figure 4.14c. Subject 14: Performance curve for water entry--front dive

not to be really interested in learning swim skills. He was happy playing by himself, tending to socialize with only one other student. When pushed slightly, as through instruction on the front dive, his performance level dropped off, and he did not attend to an instructor when she attempted to teach him skills.

Subject 12, physically small, was very withdrawn socially, thus not meeting social skill criteria requirements beyond Phase I of the process. Her swim skill level was initially low and she required an instructor to be near her for support. With time she demonstrated much improvement with a very positive upward trend in performance levels (see Figures 4.12a and 4.12b). However, her swim skills did not advance to the criterion levels to facilitate progress to Phase II of the process. Thus she remained in Phase I throughout the program.

Phase II: Skill Upgrading and Generalization Training

Seven students entered Phase II of the process. The focus of this phase was to teach them to generalize their skills so that they would perform them for other instructors and people, and in settings other than the original learning environment. The first questions asked of this phase were: Was Phase I preparation adequate? Did students maintain their swim skill levels upon entering this phase?

As illustrated in Figures 4.1 to 4.14, various degrees of generalization were demonstrated through students' performance on their swim skills with the introduction of a new instructor. Four students seemed to be minimally affected by the introduction of a new instructor. Three students maintained their swim skill performance on at least one skill for both their original instructor and the new instructor.

Subject 4 was the one student who did maintain performance levels on both skills for both instructors, and with the introduction of a second instructor he continued to improve, as demonstrated by a positive upward trend on both of his acquired skills (see Figures 4.4a and 4.4b).

Subjects 1, 6 and 8 maintained performance levels for both instructors on one skill (see Figures 4.1, 4.6 and 4.8). Subjects 1 and 6 initially did not demonstrate their second skill at the level they were performing for their first instructor. Over time they began to perform this second skill towards the degree of competency demonstrated to their first instructors. Subject 8 never did generalize learning of her third skill, the front dive, to her new instructor. Initially she demonstrated a significantly less skillful performance for her new instructor by performing it at two tasks lower than she had been demonstrating with her original instructor. As illustrated in Figure 4.8c, after the last lesson she had not yet performed this skill on an equal skill level for both instructors.

Subject 10 displayed different trends for each of the skills on which he was being instructed. His initial performance on one skill, the front crawl, was slightly better for his second instructor. However, on his second and third skills, he initially did not perform as competently for his second instructor. By the third lesson, however, he performed all three skills at an equal level for both instructors (see Figures 4.10a, b and c).

Subject 13 did not begin Phase II of the program until the fifteenth session. As illustrated in Figure 4.13b, on one skill, the

front float, he initially performed at a lower level for his second instructor than he did for his first instructor. However, by the second session he had surpassed his performance levels with his first instructor, and was performing the skill a task step higher for his second instructor. On his third skill, the front dive, he performed at a prompt level below that at which he performed for his first instructor for all subsequent sessions (see Figure 4.13c).

Subject 14 maintained his performance levels for his second instructor on two of the three skills in which he was receiving instruction.

The latter half of Phase II consisted of generalization training to teach students to perform acquired skills in different settings. In order to evaluate the efficacy of this phase the following question was asked: Will children perform their acquired skills in a new setting? The use of an alternating treatments design facilitated comparison of the effects of the new setting on students' performance levels of swim and social skills.

The introduction of a new setting did not appear to affect subjects nearly to the extent that a new instructor did. Subject 1's skill performance continued to improve in level and her swim progress continued to illustrate an upward trend across time. Subjects 4, 8, 13 and 14 maintained their performance levels during alternate sessions in the new setting (see Figures 4.4, 4.8, 4.13 and 4.14), as compared to their performance levels in the known setting.

Subjects 6 and 10 were the only two whose performances seemed to be adversely affected by the new setting, as compared to perform-

ances on alternate sessions in a known setting. Subject 6 performed the front dive at a lower level for his original instructor during the first two sessions in a new setting (see Figure 4.6b). Subject 10's performance levels on both his front crawl and front dive initially were performed in the new setting at lower task levels than previously displayed in the known setting. Use of the alternating treatments design facilitated making this comparison with his previous performance. The following session, in a known setting, his skills were performed on par with previous performances. With further familiarization in the new setting his skill level improved to the former level (see Figures 4.10a and 4.10b).

Generally people, over settings, seemed to affect subjects' skill performance. Almost all of the subjects initially displayed performances at a level significantly lower for their second instructor than for their known instructor. This may be due to two different reasons. First, students may initially have had more confidence in a known, first instructor. Over time, as they became familiar with a second instructor, their skill performance for their second instructor improved to be on par with their first, known instructor. Second, a student's performance may be a reflection of an instructor's skill in assessment. Some instructors may have interpreted students' performance levels to a higher task level than other instructors. This was controlled for as much as possible through initial training and regular inservices of all instructors, as well as videotape monitoring of approximately 25% of instructors' instructional interventions.

Only two students seemed to be adversely affected by the intro-

duction of a new setting. The instructional continuum allows for this, as the first step of Phase II introduced a new instructor. The second step introduced a new setting, on alternate days, while instruction by two instructors was continued. Thus, subjects had several more sessions with two instructors than they had in different settings.

The one skill which seemed to present the greatest problem for students to generalize was the front dive. Five students who entered Phase II of the process received instruction on this skill. Four of these five students displayed performance levels for a new instructor significantly (more than one task step) below the level they performed at for their known instructor. This skill, as compared to a propulsive skill, requires a certain degree of confidence to perform. Thus, in a new unfamiliar setting, or in the presence of a new instructor, students unsure of their own competencies may have been more hesitant to perform to the best of their abilities.

Seven students entered Phase II of the process. Within seven weeks all of these subjects' skills met the preestablished criteria and they were able to progress to Phase III of the process.

Phase III: Consciously Simulated Integrated Instructional Program

Seven subjects entered Phase III of the program. In this phase, nonhandicapped students from another classroom in the students' school accompanied them in swimming. An alternating treatments design continued to be utilized as in the second half of Phase II, whereby instruction took place alternately in known and unknown settings, facilitating comparison of students' performance in a known and unknown setting, in the presence of nonhandicapped peers.

The presence of these students seemed to affect subjects differently. Five of the seven students' performances were not affected. Subjects 1, 4, 8, 13 and 14 did not seem to be affected on their skill performance in the presence of their peers in either a known or new setting (see Figures 4.1, 4.4, 4.8, 4.13 and 4.14). Subject 6 did not perform as well for his second instructor in the new setting, in the presence of nonhandicapped peers, on one skill, the front dive (see Figure 4.6c). Subject 10 seemed to be very sensitive to a new setting. On his front crawl stroke, in the presence of his normal peers, his performance was on par with previous performances in the known setting. However, in a new setting, he performed at one task step lower. Much more significantly, however, in the presence of his nonhandicapped peers, in a new setting, he performed only at task 1 of front dive, whereas he had been previously performing at task 6 and 7. Subject 10's performance levels in a known setting were maintained as were the other handicapped students'.

In a general sense, parallel activity seemed to be the general level of socialization between handicapped and nonhandicapped peers. Small periods of cooperation were observed. Two instances of nonhandicapped students giving their inner tubes to handicapped students were observed. For some handicapped students this was a first time to sit in inner tubes and paddle around, which appeared to be a normative activity with the nonhandicapped children. Handicapped students were taught by instructors how to sit in them and how to paddle their hands. Once this was accomplished, handicapped students played beside their nonhandicapped peers in parallel activity. Although

few interactions were observed, no negative interactions were observed during the sessions.

In the presence of their nonhandicapped peers, handicapped students seemed to participate as usual in group activities. Familiar games/activities were played, which may have assisted them in being confident in participating.

Nonhandicapped students were generally 1-2 chronological years younger than the handicapped students. In free time, although their swim skill level was generally higher than the handicapped students', time was spent doing the same types of activities: throwing the ball, playing with flippers and sitting in inner tubes. This age difference was also demonstrated in a study by Guralnick (1980) where handicapped children were generally a year older than nonhandicapped children. In this study similar types of interactions were noted, primarily in a leading-following type of role, whereby the nonhandicapped children, although chronologically younger in age, took the leading role.

Seven students entered this phase of the process. Six of the seven students continued to maintain their skill learning on both skills (see Figures 4.1, 4.4, 4.6, 4.8, 4.13 and 4.14). Subject 10 initially was adversely affected by the presence of nonhandicapped peers only in a new setting (see Figures 4.10a, b and c). Ultimately, upon final testing, all seven students continued to maintain and/or upgrade their skill learning. Thus, it could be assumed that preparation was adequate for this phase to be successful. All seven students were then eligible to progress to Phases IV and V of the program.

Phases II and III focussed on a systematic process of teaching

students to learn to generalize their acquired skills across instructors and settings, in order that they would ultimately perform their acquired skills in a normative setting at their highest level previously demonstrated in an instructional setting.

Stokes and Baer (1977), through an extensive review of literature pertaining to generalization training, determined that two different environments in the instructional phase of generalization training would be sufficient to bring about successful generalized performances in other new and varied settings. In this study, therefore, two instructors and two different settings were incorporated into the instructional model in an attempt to train generalization of skills across environments. However, in order to determine the success of this instructional model, final testing was done by a new unknown examiner, in a new pool setting. Students were actually tested by two examiners in order to control for differential effects of each teacher. These two examiners were unknown to the students, both being swim instructors in the regular learn-to-swim program at the University of Alberta. This assessment was used also to determine the readiness of each student to begin Phase V.

The seven subjects' generalization of skill performance for the final examiners was much improved from when they had first demonstrated their skills for their second instructor. Subjects 1, 6 and 8 all displayed swim skill performance levels that were on par with their previous performance levels (see Figures 4.1, 4.6 and 4.8). It was recommended that they enter an integrated swim program. Subject 4, an excitable youngster, had difficulty in concentrating

on instructions. However, with repeated instructions, he did perform his skills to a level as demonstrated for his own instructors (see Figure 4.4). Both examiners felt that once he got to know his new environment, and with the support of his known instructor, he would be able to function successfully in an integrated program. Subject 10 had problems previously in demonstrating performances he was capable of. In the presence of the two external examiners, his performance was much improved; he displayed his acquired skills on par with his previous performances (see Figures 4.10a, b and c). It was highly recommended that he enter an integrated program, especially considering his rate of acquisition of skills.

In the segregated program Subject 13 was very competent in his social skills but his swim skills were weak. It was only towards the latter part of the program that he met the criteria for progress to Phase II (see Figures 4.13a, b and c). In the new environment he demonstrated performances for both examiners on par with his previous performances for two skills. He responded very well to verbal questions and questions about water safety. It was felt that with the support of a known instructor, and with time, he should not encounter any major problems in an integrated program.

Student 14 demonstrated performance levels on all three swim skills for both examiners on par with his previous performances. Both examiners noted that he still needed a lot of encouragement but that he did respond well when he was given it. It was felt the support of a known instructor was needed, at lease initially in an integrated program, until he had gained more self-confidence.

All students were able to perform at least two of their three skills for both examiners, in a new setting, which included the presence of unknown peers. Both examiners felt all students were ready to progress to an integrated program, with the support of a known instructor.

Reflecting on each student's improvement over the term, and the final results from generalization testing, it was determined that Phases II and III had been successful training for these students in that they were all capable of progressing to the next phase of the process.

Phase IV: Integrated Recreational Activity Program With Peers/Family

This phase extended students' participation in an activity beyond the instructional setting, to a recreational environment with family and friends. It required the support of the family or advocates of a handicapped student. Several students had the prerequisite swim and social skills; however due to lack of sufficient support, not all were able to continue beyond this phase.

Preparation for this phase began early in the program. Meetings with parents were arranged while students were still in Phase I of the program. The first meeting was a general meeting for parents of all 14 students to discuss the program. Six parents came to the meeting.

The second meeting was primarily for parents of students who were potentially to be integrated into community recreation programs. Three parents came to this meeting, from a potential of seven students. These parents were very enthusiastic about the possibilities of the upcoming integrated program.

Towards the end of the program a "parents only" evening was held. Babysitting service was offered for children, as well as transportation to the university and home. The purpose of this evening was to introduce parents to the progressions of swim instruction, and games used with their children, in order that they could continue to assist their children to practice acquired skills during recreational family swims. Three sets of parents indicated an interest in this evening. One mother was then unable to come due to an injury. One set of parents and another mother did come, and participated enthusiastically in the evening.

The final activity planned to facilitate enthusiasm and encourage parental participation was a parent and children (siblings included) Christmas party, with pool session and party following. This evening resulted in the best participation of any of the evenings. Six families, including both parents and several siblings, participated in this evening activity.

Letters were sent home from both teachers and the swim program coordinator well in advance about all of the activities, and parents were personally contacted over the telephone. In terms of number of parents who participated in this phase, it would not be considered successful. However, those parents who did participate did so consistently over time, and with enthusiasm.

Phase V: Integrated Instructional Program With Continuous Support

Of the seven students who were considered eligible to enter Phase V, only four entered Phase V of the process, since the rest of the students' families had other commitments. This phase of the program

took place in a regular community learn-to-swim program at the University of Alberta on Saturday and/or Sunday mornings. Cooperation of parents or advocates was required to prepare their child/adolescent for the session, and the arrangement of a car pool for students to get driven to the University. Transportation did not pose a problem as two sets of parents were very willing to drive other students who needed transportation, so it became a cooperative effort on the part of the parents.

Students had their instructor from the segregated program accompany them in the integrated class setting. This instructor's role was to assist the student to understand instructions and encourage or physically assist him or her where necessary. As well, Subject 6's twin nonhandicapped sister participated in the same class as him. She was a constant source of peer support, and helped him understand instructions where necessary.

Two subjects entered the "Maroon" level of the Red Cross program, one entered "Yellow" and one student entered the "Orange" level. At the first session the students were somewhat hesitant, and did not perform motor skills as well as they had done so previously. The classes were organized differently from the segregated classes in that there was no group work or warm-up activity to encourage socialization of students. After the first session all subjects began to demonstrate a positive upward trend in performance on both their social and swim skills. Students all improved greatly in confidence over time and demonstrated increased independence from their own instructor.

Student 6 started in the Maroon class. His sister accompanied

him in the class along with student 14. Initially they formed their own little clique and stayed within very close proximity of each other. As the program continued they gradually began to interact with the other members of the class and be less dependent on each other. Subject 6 demonstrated sufficient improvement on his swim skills over the term that he was able to complete the Maroon level at the end of the session (see Appendix B).

Student 13 began in the Yellow, or Novice swim skill level of the Red Cross Standard program. His most obvious problem was his large physical size. The other students in his class were younger and smaller, so he was an obvious person in the class setting. This did not seem to bother him however, as he is very sociable in nature. He improved on all of his swim skills over the session, but did not complete the Yellow level as his performance on his back was not up to the requirements.

Subject 14 entered the Maroon level of the Red Cross program. Initially he tended to depend upon Subject 6; however, over time he became more independent. However, he displayed a problem with self-confidence. This was present in the segregated program, as initially he felt that he could not do anything. With much encouragement he had improved greatly. There were some days, however, where students would do a skill with which he had difficulty and he would state "I can't." With constant encouragement he was generally convinced that he could do it. Over time he did demonstrate significant progress on his skills. However, his front crawl did not reach criterion levels to permit him to complete the Maroon level of the Red Cross program.

Subject 4 missed the first two sessions of the community instructional program. When he did come on the third session, the other students already knew each other, their instructor, and were familiar with the routine. He participated for three sessions. During that time he did display swim skills on par with the level he had previously performed at, and displayed very high social attentiveness, even in comparison to his previous performance in the segregated program. However, after the third session, his parents felt that he wasn't enjoying it as much as they thought he would and they withdrew him from the program.

Thus, was Phase IV preparation adequate? Three students' parents were very cooperative and positive about the program. Students attended lessons regularly, and were present on time in appropriate swim attire. They took turns; in fact often all came to watch their children/adolescents participating. One student did not complete the phase, as described above. Thus, in consideration of students' progress and the enthusiasm of parents, it seems permissible to state that Phase IV was adequate in preparing parents and students for Phase V.

Social interactions between handicapped and nonhandicapped students appeared to improve with time. As the handicapped students became more comfortable in their surroundings they seemed to be more relaxed, cling less to each other and began to initiate interaction with other students in the class. Unfortunately the class instructor did not spend any time to help students get to know each other, e.g. through games or activities. Consequently perhaps, it seemed to take a long time for students to get to know one another and speak at all

to each other. The type of activity generally engaged in was parallel, as nonhandicapped and handicapped students alike worked alongside each other without really interacting.

All students who participated in the program demonstrated significant improvement on both their physical and social skills (see Tables 4.6, 4.13 and 4.14). Subjects 6 and 14 met the preestablished criteria at the end of the program to be able to progress to Phase VI of the process. Thus, for these students Phase V was demonstrated to be successful. Subject 13's swim skills did not yet meet the preestablished criteria levels to permit him to enter Phase VI. Thus he required continued supervision of an instructor, so needed to remain in Phase V for another session.

Phase VI: Integrated Instructional Program With Minimal Support

This phase permitted students to participate in an integrated class with the assistance of instructors only when necessary. The instructor assisted only if the subject had problems in understanding instructions, or required special assistance in learning a new skill.

Towards the latter part of the session Subjects 6 and 14 informally began Phase VI, as their "special" instructors began to fade their assistance and took more of a background role. Subjects 6 and 14 continued to demonstrate improvement on their swim skills and social skills. Still, the primary type of social interaction taking place was parallel activity between the handicapped and nonhandicapped students. Verbal communication between peers was occasionally observed.

This phase was successful in that both students continued to improve on their swim and social skills, and nonhandicapped peers

generally demonstrated an accepting attitude towards the handicapped students. No negative action or word was encountered. However, in order to facilitate continued success, it was determined that in the next program session it would be best if someone was there to look out for the students, at least initially, until they got used to a new instructor and unknown nonhandicapped peers.

Phase VII: Integrated Instructional Program With No Support

This phase of the program permitted participation of a student without the support of a special instructor.

This phase was actually beyond the scope of this project with regard to the time frame of the project. However, two of the three students who had participated in Phases V and VI of the program continued with the next session of swim lessons. Initially a special instructor accompanied them; however after three sessions the subjects began participating on their own.

Upon follow-up observation, and conversation with parents and swim instructors, it was learned the students were enjoying the program and participating adequately. There were, however, no data kept on this final phase of the program.

Summary Evaluation of the Phases

The purpose of this study was to determine if the competencies in both swim and social skills could be defined to facilitate continued progress of students through the phases of the process. Maintenance of a student's skill levels in a subsequent phase was defined as successful preparation in the previous phase. This process represented

a continuum of seven phases of instruction, each one bringing a subject closer to self-sufficient participartion in an integrated community learn-to-swim program.

Fourteen students entered Phase I of the process. All students demonstrated progress on at least two of their acquired swim skills. In this phase social skill competencies of each student were assessed and subsequently these skills were monitored on a daily basis. Seven students' (or fifty percent of students) skill levels met the pre-established criteria levels on both swim and social skills, during the time restraints of the program, which permitted them to enter Phase II of the process. Due to lack of swim and/or social skills the other students did not progress to Phase II of the process. With more time, it was felt some of these students could have improved their swim skill levels sufficiently to progress to the next phase. They had begun the program with very low swim skill levels, and consequently needed more time in an upgrading phase to reach criterion skill levels.

It is questionable, however, if two of the students (Subjects 5 and 9) would meet criteria levels on social skills without extensive time and training. In this study, direct instruction was not provided on social skills, only on swim skills. Students received informal social skill training; however the majority of formal training took place with classroom teachers.

All seven students who entered Phase II continued to demonstrate progress on their skills, and consequently all of them were able to continue to, and through Phase II of the process.

However, Phase IV and beyond required the cooperation and participation of parents or advocates of handicapped students. Due to

insufficient support only seven students were able to progress to Phase V.

Four students entered Phase V of the process. One student's parents felt he was not enjoying the program as much as they had expected and, consequently, Subject 4 was withdrawn from the program part way through the session. Three out of the four students continued participation in the integrated program. They all contined to demonstrate progress on both swim and social skills.

Two of the three students entered Phase VI of the process part way through the program session, as their swim and social skills met the preestablished criteria levels.

Data collection was terminated after one program session of student participation in an integrated program. Two students did, however, continue to participate in the next program session, with minimal assistance. Informal reports of their participation from instructors and classroom teachers were positive in nature.

Adequacy of the Criteria

Criteria had been established as entry levels of skills for each phase of the process. Since these criteria were new in each phase and since the stimulus events in each phase were new also, the design was considered to be a changing criterion design. This design required examination of students' performance at the beginning of each phase and analysis of trends both within and between all phases.

All the subjects who were allowed to progress to Phase II of the process continued to demonstrate progress on their skills. Initially, for a second instructor performances fell off, but by the second inter-

vention skill performances again displayed a positive upward trend over time.

Ninety percent (all but one student) experienced early success when placed in a new setting, in the latter part of Phase II and Phase III. Over time skill performance levels were maintained, which indicated adequate preparation from previous phases.

Within the time frame of the program only half of the students had reached the criterion levels for entry into Phase V of the process. Of those students who were able to continue in this phase, 75% experienced early success in this new phase by maintenance of previous skill levels.

Phases I and II showed an upward trend of skill acquisition by 90% of the students. As the criteria became more difficult for entry into subsequent phases, and as stimulus events became more challenging, students' performance trends demonstrated maintenance of performance (as in Phases III and V) rather than improvement (as in Phases I and II. Maintenance and/or continued progress of skill performance had been determined as evidence of adequate preparation in previous phases. Consequently Phases I - IV demonstrated that they had provided students with adequate preparation for entry into Phases V through VII in an integrated setting.

CHAPTER V

DISCUSSION

The purpose of this study was to develop and evaluate a process of the integration of mentally handicapped individuals into community swim programs. This process was based on a combination of skill upgrading, generalization training and systematic introduction to community swim programs. Phases of the process followed sequentially, each one bringing students closer to participating in integrated programs independently.

Progress through the phases was dependent upon students' abilities to generalize their acquired swim skills, and their maturity in coping with the demands in a pool environment. In order for students to progress through subsequent phases they were required to reach a certain degree of competence in both swim and social skills. Criteria were thus established as requirements for entry into each phase of the process. A changing criterion, single subject design, facilitated evaluation of the success of the process by allowing for the analysis of data within and between phases across a number of subjects. Success of each phase was determined by maintenance or continued progress on students' acquired skills.

Minimal competencies in motor and social skills were described as criteria for entrance into each phase of the process. When students had acquired the necessary skills as determined by the pre-established criteria, they were permitted to enter the subsequent phase of the process.

All students who did progress beyond Phase I of the process continued to at least maintain the level of performance on both of their acquired swim skills, and social skills. Additionally, they all demonstrated progress through an upward trend with an increased level of performance on at least one skill (see Figures 4.1 - 4.14). Thus, as defined initially, they all progressed satisfactorily in subsequent phases of the process.

Once subjects reached Phase II of the process they began to receive generalization training across instructors and settings. Students seemed to be affected to a greater degree by the introduction of a new instructor rather than a new setting. Only one student maintained his performance on both skills for both instructors. All other students' performances on at least one skill showed a decrement in level with the introduction of a new instructor. However, after a few sessions, students did learn to perform their skills as well for their second instructor as for their first one.

Alternatively, two students displayed different trends of learning in this phase. These two subjects initially did not perform their skills as well for their second instructor as they had been doing for their original one. However, after a few sessions, they began to perform one skill better for the second instructor than they did for the first instructor. In this case, the second instructor may have placed higher demands upon the students, or the novelty of a new instructor may have resulted in better performance.

Students generally seemed to be minimally affected by the introduction of a new setting, as can be seen through the use of an alternating conditions design (see Figures 4.1 - 4.14) whereby performances

in the new setting can be compared with alternate sessions in a known setting. The second training setting may not have seemed to be a drastic change for some students, as the lessons continued in the same facility with only a change in pools. The new pool was much larger, with bleachers on one side enlarging the spectator area. The pool was deeper throughout, with the addition of a deep tank. Thus its appearance may have been enough to initially scare some students. Only two students out of seven seemed to be adversely affected by the new setting. Four students maintained their performance levels and one student continued to display progress on his skills.

It was hypothesized instructors would have a much greater impact on students' performances, as they directly interact with a student, whereas the setting only establishes the environmental atmosphere--known, unknown; friendly or unfriendly. The continuum supports the above in that in the first step of Phase II a new instructor began to teach a student. Once the student performed successfully for both instructors, he began step 2 of the phase when he was introduced to a different setting and continued with two instructors. Thus, more time was spent on the first step of the second phase.

In Phase III reverse integration took place when a few known nonhandicapped peers accompanied the students to the pool and engaged in a free swim time at the same time and in the same area as instruction was being given to the handicapped students. Both groups took part together in free swim time and group games.

With the introduction of nonhandicapped peers, subjects continued to demonstrate performances on par with their previous performances. However, in a new setting, two of the seven students initially

demonstrated skills at a significantly lower level than they had previously displayed. Student 10, who had previously had problems in generalizing his skills in a new setting, had problems doing so initially in the presence of nonhandicapped peers. However, in the final generalization in a third unknown setting, in the presence of unknown peers, he was able to perform his skills to a level previously displayed in a segregated setting.

An alternating treatments design was utilized in Phases II and III of the process. In this type of design, treatment for instruction alternated between the known, or familiar setting and a new setting. Thus, when a new pool setting was introduced, one session was in the new pool, the next session was in the original pool, the next session was in the new pool, the next one was in the familiar one, and so on. This procedure facilitated comparison of performance of subjects' skills in a familiar setting with their ability to generalize their skills to a new setting. Differences in their performance were easily observable between familiar situations and new environments. Their skills initially dropped significantly in level, but over time skill levels were maintained in the new setting. This trend of performance is supported in a study by Hill, Wehman and Horst (1980) where an alternating treatments design was also utilized to assess generalization across different environments. In this study, severely handicapped students' performance, with repeated exposure in the community, became comparable in the controlled setting (school) and community setting.

Phase IV and subsequent phases required the participation and

support of parents or advocates of the handicapped students. In this study, three of the seven students who were eligible to enter phases four and five were unable to do so due to lack of sufficient support.

Students who had the support of parents in Phase IV were all very enthusiastic and excited initially in their presence. They were, however, all able to maintain their acquired performance levels on the skills they demonstrated for their parents. For these students and their parents, mutual participation seemed to be a very positive experience. Parents indicated their enthusiasm for their children's increased swimming skills, and they seemed positive about continuing participation as a family in recreational swimming sessions at the university, nearby community pools, and/or upcoming summer holidays at "their" lake.

When subjects progressed to Phase V of the process, they encountered a totally new setting, with unknown nonhandicapped peers and an unknown instructor. As well, instruction was conducted in a different manner than they were accustomed to, that is, in a group situation rather than on an individualized basis. Their only source of support was a known instructor from the segregated swim program. Initially the students were quite withdrawn and did not demonstrate their swim skills at a level that they had previously demonstrated in Phase III. However, gradually, over time, they demonstrated significant gains in the levels of their swim skills. All three students who continued in the integrated swim program did progress on all swim skills, demonstrating an upward trend on the performance levels of their acquired skills.

As well, and perhaps as importantly, they appeared to gradually gain confidence, and to initiate interactions with nonhandicapped students. By the end of the program session, which lasted ten weeks, one lesson per week, the special instructors had faded their assistance, so that two of the students were actually in Phase VI of the process. The students appeared quite comfortable in the class and demonstrated continued progress on their swim skills. Informal feedback to classroom teachers was very positive from both students and parents about Saturday swim lessons.

The only potential problem, which was encountered once, was during a theory lesson on water safety. The handicapped students obviously did not understand the content of the lecture; and displayed a disinterest in the lesson as they turned their heads away from the instructor and looked elsewhere, at parents and around the pool. With a more understanding instructor, this situation could be easily overcome. As it was, some of the nonhandicapped students appeared not to be interested either, as they whispered and looked elsewhere than at the instructor. However, theory lessons could be an area of concern since, as children improve in swim skills, theory lessons become more comprehensive. An instructor thus would need to be aware of a handicapped student's level of understanding, and would need to break down the information to a level that the handicapped student could understand. Ideally an assistant instructor could work with mentally handicapped students about water safety.

Although the program did not continue long enough for data to be collected on students who participate independently in an integrated

program, it is believed that if adequately prepared, students would, once they felt comfortable in a new setting, continue to improve on their swim skills. Two students in the study actually did continue in an integrated program independently. Although no data were formally collected on their progress, feedback from parents and swim instructors was positive in nature, indicating that the students were enjoying their lessons, and that they were progressing on their swim skills.

From the results of this study, it appears that progress through the phases resulted in successful participation in community programs. Students with the required swim and social skills who continued in the integrated program not only maintained but improved their acquired swim skill levels. As well, they demonstrated improvement on their social skills. Other nonhandicapped students seemed to display an accepting attitude towards their handicapped peers.

However, how does one define successful integration? There are many variables associated with an integrated program that one can analyze in order to define "successful". One can look at the student being integrated. One can assess only physical skill performance, and determine what happens to the progress of the acquired skills. However, if a student displays atypical social behavior, such as withdrawal, or behavior problems, the value of integration might be questionable for their emotional benefit.

Subjects who participated in this study were from a typical heterogeneous group of individuals. Some children certainly, with time, had the potential to be integrated into a regular program. For others, one would question the benefits of integration. For

example, one subject pulled out her hair and picked her arms; another had regular temper tantrums, played with himself and urinated on the pool deck; and yet another student came swimming in University Hospital underwear. This type of behavior is not an exception in a group such as this. How would these students cope in an integrated program?

As well, what about nonhandicapped peers? How do they react to the presence of handicapped peers? Do they display a negative attitude, an accepting, or a helping/cooperative attitude? Does acceptance, as defined by no negative actions, constitute success? Wolfensberger (1972) stated that in order for integration to be successful, it must occur at a social level. In this program, students interacted primarily at a parallel social level, with minimal social interaction. Perhaps to Wolfensberger this would not be termed successful.

Williamson (1979) suggested that integration may be considered in three stages, which include: (a) contact (coming together); (b) involvement (a formal game or activity), and ultimately (c) interaction (a spontaneous, shared recreational activity). He has suggested that the ultimate level of integration (spontaneous, shared interactions) does not occur immediately. Rather, it takes time and support, through careful planning on the part of adult assistants. Gradually assistance may be decreased and handicapped and nonhandicapped individuals may be able to interact on a personal basis (Williamson, 1979).

In this study the first two stages of Williamson's model of

integration developed through Phases III and V. Students came together in the same physical environment and they willingly participated in formal games and activities. Gradually, increased interactions were noted between the handicapped and nonhandicapped students. The most special feeling was when handicapped students initiated the interaction, which occurred a few times towards the end of Phase V.

The process evaluated in this study represented a systematic continuum which brought each child progressively closer towards participation in an integrated program. This process focussed on each individual's rate of development. Rather than treating the group as a cohesive unit, and sending everyone through the process at the same rate, each individual progressed according to his or her own development of social and swim skills. Williamson (1979) supports the need to take both physical and social skill level of an individual into account prior to integration in order to make it a positive, successful experience. If a student is lacking adequate physical or social skills, he suggests that the degree of integration may not progress beyond that contact stage. A student lacking adequate skills may not be able to participate in a game, may display inappropriate social skills, or have a limited concentration span to learn skills. This performance may not be tolerated by nonhandicapped peers, which may result in ridicule or social isolation. Williamson suggested that training in both social and physical skills prior to contact is needed for successful integration of handicapped children.

Hill, Wehman and Horst (1980) experienced this phenomenon when

they undertook a study towards integration with severely mentally handicapped students. In their study students did not receive any training on social skills prior to their first experience in a community setting. It was then determined that appropriate social task-oriented activity also needed to be systematically approached.

In the present study, both swim and social skills were monitored daily. Criteria for progress to successive phases required prerequisite levels of skills on both social and swim skills. Students were only permitted to progress to subsequent phases when both their swim and social skills met the preestablished criteria. As a result some students were perhaps held back who may have been able to function adequately in an integrated setting. However, this ensured a successful experience for those students who did participate in the integrated program. All students were required to progress through each phase of the process. It is not known if each step of the process was needed by every student in order for him or her to successfully participate in an integrated setting. Rather than test this possibility and risk failure of a student in an integrated setting, it was determined that all students would be provided with instruction in a progressive manner to provide them with adequate preparation for entry into an integrated program.

Numerous authors are in agreement with this philosophy, including Hunter (1981), who stated that, "Success is not a destination. It is a journey." Hunter stated that an individualized approach to integration is needed wherein attention to individual needs, interests and skill levels is stressed.

Various authors have focussed on different aspects of a service continuum towards integration of handicapped individuals into community recreation programs. Hutchison and Lord's (1979) three steps of Upgrade, Educate and Participate seem to provide a global description of the process. The need for skill upgrading of the mentally handicapped individual, education of the public, and most importantly, participation through a series of systematic steps provide the framework for a workable model. Reflecting that recreation integration is a process, dependent upon an individual's social and physical development, the process can and should reflect a successful journey for every individual involved, handicapped and nonhandicapped alike.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to develop and evaluate a process towards the integration of mentally handicapped students into Community Learn-to-Swim programs. The process followed a sequence of phases, each one bringing students closer to self-sufficient integration.

Progress through the phases was dependent upon subjects' ability to successfully generalize their swim skills and social maturity in each learning environment. In order for students to progress to successive phases they were required to demonstrate a certain degree of competence on both swim and social skills, as determined by a sequence of preestablished criteria. Success of each phase was determined through students' ability to maintain or demonstrate an improvement on their performance on both swim and social skills as they entered a new phase of the process.

Fourteen students initially began Phase I of the process. All students were assessed on their swim skill level. Based on this assessment, two or three swim skills were prescribed for instruction, which was carried out in an individualized manner, according to the PREP model of instruction (Watkinson & Wall, 1982).

When students' swim and social skills met the required criteria they progressed to the following phase of the process, which con-

sisted of generalization training across instructors and settings. Seven students' skills met the preestablished criteria, and thus they entered Phase II of the process.

These seven students maintained or demonstrated improvement on their skills in Phase II. All seven students' skill performances eventually met the preestablished criteria for progress to Phase III, which consisted of reverse integration with known nonhandicapped peers.

Phase IV, however, required the interest and support of students' parents. The lack of parental interest and support of students proved to be the major limiting factor in this study. Only six of all fourteen students' parents displayed an interest in the program. Four sets of parents of the seven students who participated in Phase III demonstrated a continued interest in their adolescent's performance, and displayed a willingness to support him or her on entering an integrated program. Support entailed ensuring a student had appropriate swim wear, and some means of transportation to be able to attend swim lessons on time, on a regular basis.

Four students began Phase V of the process, participating in an integrated program with the support of a known instructor. One student dropped out of the program after the third lesson, as his parents did not maintain their commitment. However, the other three students did continue in the integrated program, with excellent results. They all demonstrated an improvement in the level of their swim skill performance and social skill competencies. All parents were very pleased with the program, and the improve-

ments their children had made. In the program, no negative interactions were observed between handicapped and nonhandicapped students.

The study was formally terminated after Phase V of the process. However, two students were informally monitored as they entered the next session of the swim program. Information from all sources (support instructor, parents and regular swim instructor), suggested that the students were enjoying their lessons and continuing to demonstrate improvement on their swim skills.

A single subject changing criterion design facilitated illustration of each changing phase that students participated in. When a student met the criteria required for completion of Phase I, he was promoted to Phase II of the process. Students' swim skills were analyzed visually for changes in trends, levels, or stability over time. Success of each phase was defined as maintenance or improvement on acquired skills over time.

All students in the program maintained, or improved their skill performance levels as they progressed through each of the phases of the process. Thus, according to the definition for success, the minimal competencies on swim and social skills described for progress through the phases adequately screened the readiness of each subject for entry into a subsequent phase of the process. The purpose of this study was thus achieved, as the process towards integration into community learn-to-swim programs was a successful experience for all students, regardless of where they were on the continuum.

Conclusions

The development and evaluation of this process towards the

integration of mentally handicapped students into regular community learn-to-swim classes provides support for the following conclusions:

1. Individualized instruction and progress through each of the phases facilitated successful experiences for each student in the program.
2. With adequate preparation, utilizing two exemplars, students were successful in generalizing acquired skills across instructors and settings. Generally, students appeared to be more sensitive to people, rather than settings when placed in a new learning environment.
3. The preestablished criteria levels on swim and social skills were adequate in screening subjects' performance levels on swim and social skills to facilitate successful experiences in subsequent phases of instruction.
4. Continued progress of a student beyond Phase III of the process requires a strong commitment from a student's parents to ensure that he or she will be transported regularly, on time, to swim lessons. Some students may be unable to progress beyond Phase III of the process due to lack of support from their parents.
5. With adequate preparation, through a systematic, progressive continuum, adequate screening of students on physical and social skills, and adequate preparation of a community swim instructor and support staff, some students can be successfully integrated into regular community learn-to-swim programs.

Recommendations for Further Research and Programming

The following recommendations are suggested for further inquiry and programming in the development of integrated programs for mentally handicapped and nonhandicapped individuals:

1. This study was carried out on a small scale with the participation of 14 students. The integrated program took place at one facility at the University of Alberta. In order to determine the efficacy of the process on a larger scale it is recommended that the process be repeated, with a larger sample of students, from various schools. Integration would then take place in facilities near the students' places of residence.
2. As well, no follow-up was done to facilitate continued participation in integrated programs. Ideally, another study would be conducted to facilitate continued participation for the students, in which data would continue to be collected even after students were participating independently in the program, to determine their continued success in the process.
3. Generalization training, utilizing two instructors and two settings, was successful in teaching students to perform acquired skills across instructors and settings. It is recommended that generalization training be included in any process towards integration in order to ensure that students will successfully generalize their skills.
4. Success of the process was defined as maintenance or improve-

ment of subjects' skills as they progressed through successive phases of the process. Although nonhandicapped peers' reactions were noted, no formal data were collected on this variable. According to Wolfensberger (1972), integration must occur at a social level in order for it to be termed successful. It is recommended that a future study be conducted in which reactions of nonhandicapped to handicapped peers are monitored closely.

5. From the success of this study, which took place in a swimming environment, it is hypothesized a similar process could be utilized to facilitate integration of mentally handicapped individuals into other normative recreational instructional programs. It is, therefore, recommended that this process be utilized in other activities as well, to assist the development of more successful integrated community recreational programs.
6. In order to ensure success for all individuals involved, it is recommended that any process towards integration should include: a systematic progressive instructional process; generalization training across instructors and settings; adequate preparation and screening of handicapped students prior to entry into an integrated program on both their physical and social skills; adequate preparation of parents, and community instructors and support staff.

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APPENDIX A

TEACHER AND SWIM INSTRUCTOR TRAINING INFORMATION

A Process Towards the Integration of Mentally Handicapped Individuals Into Community Learn-to-Swim Programs

Task Analysis and Individualized Instruction Through a Prompting Continuum

Sequence of Skill Acquisition

Teaching Progressions

A PROCESS OF THE INTEGRATION OF
MENTALLY HANDICAPPED STUDENTS INTO
COMMUNITY LEARN-TO-SWIM PROGRAMS

Phase	Focus
I	Skill Acquisition and Upgrading
II	Skill Upgrading and Generalization Training (a) to other instructors (b) to other settings
III	Reverse Integration Skill Upgrading
IV	Recreational Activity with Family/Known Peers
V	Integrated Instructional Program Participation (with continuous support) Skill Upgrading
VI	Integrated Instructional Program Participation (with minimal support)
VII	Independent Integrated Instructional Program Participation

Task Analysis and Individualized Instruction Through a Prompting Continuum

In order to facilitate successful learning for mentally handicapped students, complete or whole skills may be broken down into smaller steps which are taught sequentially. Steps are taught sequentially to a student until the whole or target skill is achieved.

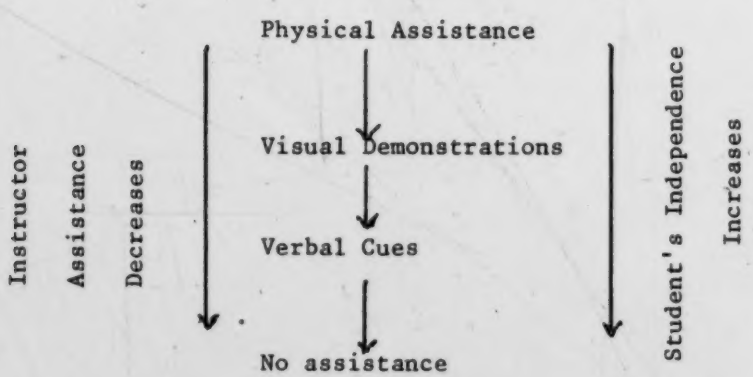
Swimming can be broken down in this manner, into as many steps as are appropriate for the rate of learning of each student.

When attempting a swimming skill for the first time, people often require physical assistance. Gradually this need for physical assistance is reduced, and a demonstration, or verbal cue is sufficient to remind a student to practice a newly acquired skill. Eventually, when a student is capable enough and self-motivated, he will perform a newly acquired skill independently of any assistance from his instructor.

The continuum, from requiring complete physical assistance until a person can perform a skill independently, can be systematically coded to permit an instructor to follow a sequential approach whereby she gradually decreases her assistance, and gradually increases independence of the student.

Mentally handicapped students should be given instruction on the first subskill until they can perform it independently. Initially they should be given physical assistance. The physical assistance should be gradually decreased, followed by demonstrations and approp-

Pre-response Prompting Continuum



- Adapted from Watkinson & Wall (1982)

riate verbal cues. Finally, when a student can perform that subskill independently, he should be given assistance to learn the next subskill in the learning sequence.

The assistance given to a student, which follows a decreasing progression from physical, to visual, to verbal, to no assistance, is termed the prompting continuum. The prompting continuum suggests a systematic fading or reduction of prompts until a student performs a target skill independently.

The sequence for fading assistance is as follows:

Physical Assistance

Complete Physical Assistance (C.P.) - this level of assistance provides a student with the greatest amount of assistance where his body is actually guided through the correct action.

Partial Physical Assistance (P.P.) - this next level of decreased assistance involves providing physical assistance at some point in execution of the skill. It may be at the beginning of the response, part way through, or at the end.

Minimal Physical Assistance (M.P.) - permits contacting part of a student's body to indicate what body part is to be moved, or which body part to concentrate on while executing the skill.

Visual Demonstrations

Visual demonstrations are generally accompanied by a verbal prompt.

Complete Skill Demonstrations (D) - are accurate, often exaggerated complete skill demonstrations of the skill desired. They are performed with, or on, any equipment that is to be used for execution of the skill.

Partial Skill Demonstations (P.D.) - are accurate demonstrations of one component of a skill.

Gestural Demonstrations (G) - involve the use of a gesture, which is not part of the skill to be performed but illustrates what is the desired movement (e.g., instructor gestures to water for student to jump in).

Verbal Cues

Skill Cues (S.C.) - consist of words to emphasize the key features of a skill. These may be words to describe actions, such as, "kick your feet", or "bend your elbows".

Skill Mands (S.M.) - are a verbal description of the desired movement. They include specific action words that can be used in commands or questions, such as, "Let's dive", or "Jump in!"

Action Cues (A.C.) - are words used to motivate students to perform a skill, but are not descriptions of the skill itself. Words such as, "Ready, - - - go!" or "One, two, three, - - - go!" are examples of these cues.

Independent Performance

Initiation with Environmental Goal (E.G.) - involves a teacher placing an object in the environment which will encourage the student to perform an action.

Imitative Initiation (I.I.) - a student performs a skill after watching other students perform it.

Initiation in Free Activity (I) - a student initiates a skill during free time without the benefit of a peer demonstration.

Sequence for Fading Assistance (Swim Program)

Physical Assistance

Complete Physical Assistance (C.P.)
Partial Physical Assistance (P.P.)
Minimal Physical Assistance (M.P.)

Visual Demonstrations

Complete Skill Demonstrations (D)
Partial Skill Demonstrations (P.D.)
Gestural Demonstrations (G.)

Verbal Cues

Skill Cues (S.C.)
Skill Mands (S.M.)
Action Cues (A.C.)

Independent Performance

Initiation With Environmental Goal (E.G.)
Imitative Initiation (I.I.)
Initiation in Free Activity (I.)

- adapted from Watkinson and Wall (1982)

The prompting continuum can be used in three ways. First, it systematically permits an instructor to reduce her assistance by defining levels of assistance where a decreasing amount of physical, visual, or verbal assistance is given to elicit an action. It permits an instructor to decrease her proximity to a student, so that the student is less dependent on his instructor in his free time. As well, the continuum of prompts allows an instructor to delay giving assistance, in order to encourage students to initiate an action, when they have previously been dependent upon assistance in some form from their instructors (Watkinson & Wall, 1982).

It is through fading of assistance that a student learns to accomplish the final goal; that is, the performance of a target skill independently. It is hoped, by instructing each student on an individualized basis, through a continuum of skill progressions and decreasing assistance, that he will gradually understand the demands of the desired skill and enjoy executing it, so that he performs it because of the intrinsic motivation achieved by performing it rather than for reinforcement from his instructor.

Note: For a more complete explanation of individualized instruction and the prompting continuum, see, PREP. The PREP Play Program: Play Instruction for Mentally Handicapped Children, (Watkinson & Wall, 1982), from which these instructional methods have been adapted.

Sequence of Skill Acquisition

Water Adjustment

Water Adjustment

Face Submersion and Breath Control

Face Submersion
Breath Control

Front Float and Recovery

Front Float
Front Float Recovery

Back Float and Recovery

Back Float
Back Float Recovery

Change of Body Position

Back to Front
Front to Back

Front Propulsion

Kicking
Arm Action

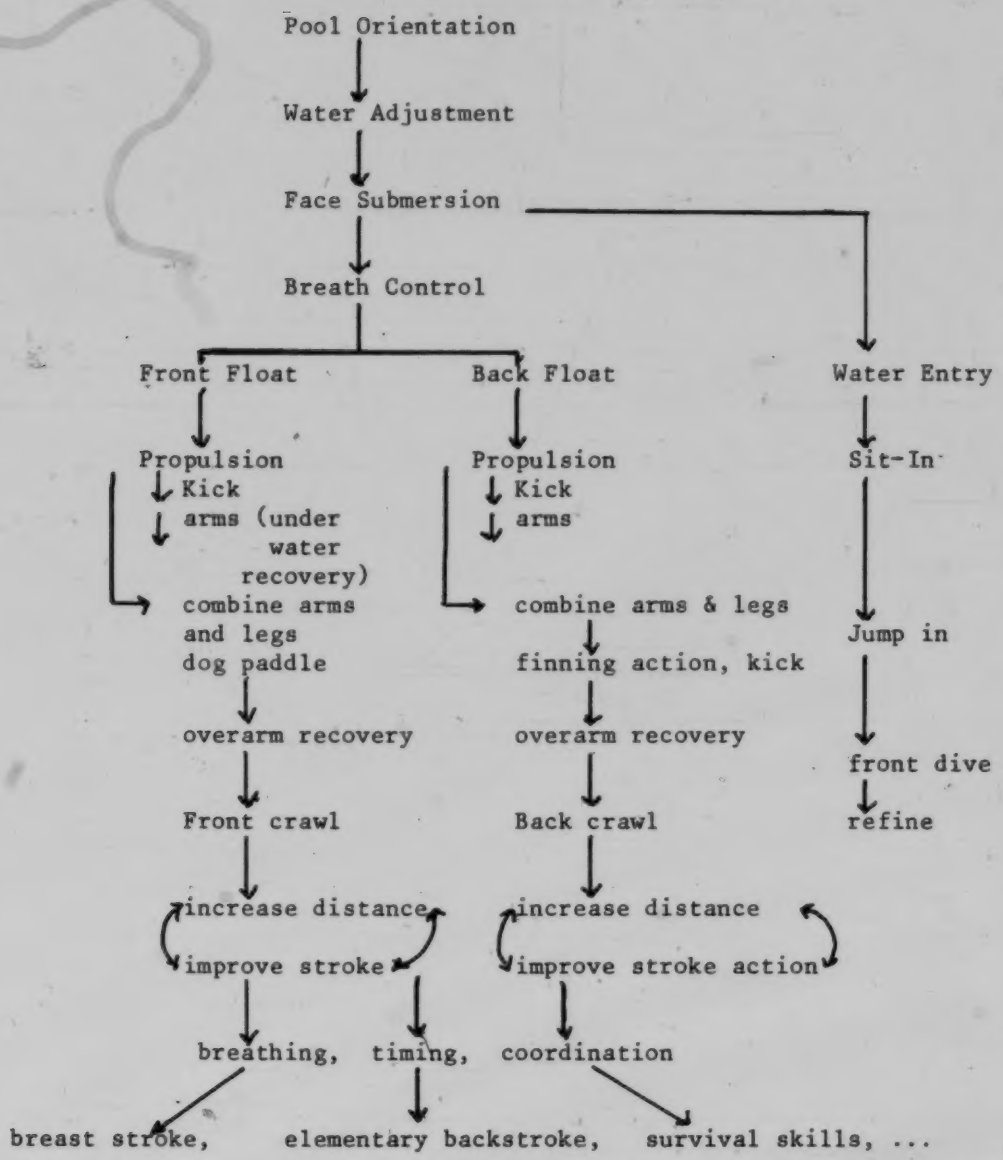
Back Propulsion

Kicking
Arm Action

Water Entries

Sit In
Jump In
Dive In

Teaching Progressions



APPENDIX B

DATA COLLECTION INFORMATION

Free Swim Inventory

Individual Student Profile

Daily Record Form

Graphing Code

Daily Graph

Progress Graph

Social Skill Competencies

Minimal Skill Competencies for Completion of Each Level

FREE SWIM INVENTORY

STUDENTS

WATER ADJUSTMENT					
Water Adjustment					
FACE SUBMERSION AND BREATH CONTROL					
Face Submersion					
Breath Control					
FRONT FLOAT AND RECOVERY					
Front Float					
Front Float Recovery					
BACK FLOAT AND RECOVERY					
Back Float					
Back Float Recovery					
CHANGE OF BODY POSITION					
Back to Front					
Front to Back					
FRONT PROPULSION					
Kicking					
Arm Action					
BACK PROPULSION					
Kicking					
Arm Action					
WATER ENTRIES					
Sit In					
Jump In					
Dive In					

PREP SWIM PROGRAM

Individual Student Profile

Teacher's Name _____

Student's Name _____

Date _____

	Performs with physical assistance	Performs with visual assistance	Performs with verbal assistance	Performs independently
WATER ADJUSTMENT				
1. Feel water on skin, and all parts of body--hands, feet, arms, face, back etc.				
2. Immerse body to chest level				
3. Walk in chest deep water				
4. Run, hop, and skip across pool.				
FACE SUBMERSION AND BREATH CONTROL				
Face Submersion				
1. Submerge to chin				
2. Submerge to nose				
3. Submerge to eyes				
4. Submerge whole head and recover				
5. Submerge head, recover and repeat				
Breath Control				
1. Take an exaggerated breath and exhale				
2. Blow over water, watch ripples formed				
3. Submerge mouth, exhale once				
4. Submerge mouth, exhale, repeat				
5. Submerge mouth and nose, and exhale				
6. Submerge mouth and nose, exhale and repeat				
7. Submerge whole head, exhale and recover				
8. Submerge whole head, exhale and repeat				
9. Lie on stomach, place face in water and exhale				
10. Lie on stomach, face in water; exhale, lift head for inhalation, repeat				

	Performs with physical assistance	Performs with visual assistance	Performs with verbal assistance	Performs independently
FRONT FLOAT AND RECOVERY				
Front Float				
1. Body at 45° angle in water, hands on instructor's shoulders, supported at waist.				
2. Body horizontal, hands on instructor's elbows, head out of water.				
3. Body horizontal, hands on instructor's elbows, chin in water.				
4. Body horizontal, hands on instructor's hands, chin in water.				
5. Hands on instructor's hands, body extended, head in water.				
6. Body in position, head in water.				
Front Float Recovery				
1. Lie in prone position, curl into a ball.				
2. Lie in prone position, curl into a ball, lift head out of water.				
3. Lie in prone position, curl into a ball, lift head, extend feet to standing.				

	Performs with physical assistance	Performs with visual assistance	Performs with verbal assistance	Performs independently
BACK FLOAT AND RECOVERY				
Back Float				
1. Feet on bottom, sit on instructor's knee, head extended back on instructor's shoulder.				
2. Head angled back, face towards ceiling, body at 45° angle in water, supported under head and back.				
3. Body in horizontal floating position, supported under head and back.				
4. Body in horizontal position, supported by one hand under back.				
5. Lie on water in horizontal floating position.				
Recovery From Back Float				
1. Back float position; knees flex, brought up to chest, arms brought down to knees.				
2. Perform as above, then bring head forward, tuck chin.				
3. Perform as above, then rotate forward until in vertical position. Extend legs to standing.				

CHANGE OF BODY POSITION	Performs with physical assistance	Performs with visual assistance	Performs with verbal assistance	Performs independently
Back to Front				
1. In back float position, arms extended at hips, reach across chest with one arm.				
2. Perform as above, then rotate head in same direction.				
3. Perform as above, then roll on to stomach.				
Front to Back				
1. In front float position, arms extended above head, reach one arm towards hip.				
2. Perform as above, then rotate head towards turning arm.				
3. Repeat as above, then roll body towards head, roll onto back.				
4. Complete roll from stomach to back, over to stomach.				

	Performs with physical assistance	Performs with visual assistance	Performs with verbal assistance	Performs independently
FRONT PROPULSION				
Kicking				
1. Hands on instructor's elbows, body in 45° angle position, chin out, flutter kick with alternate leg action.				
2. Hands on instructor's elbows, body extended into prone horizontal position, chin at water level, flutter kick - alternate leg action.				
3. Body in horizontal position on front, face in water, kick with alternate leg action.				
4. As above, kick from hip, move 6 feet.				
Arm Action				
1. Balance on instructor's knee, facing forwards, arms describe alternating small circles under water.				
2. Body at 45° angle in water. Make larger underwater circles pulling water back to hip.				
3. At 45° angle, move arms in "dog paddle" action, kick feet.				
4. At 45° angle in water, move arms and legs, move through the water 5 feet +.				
5. As above, then place head in water.				
Overwater recovery				
6. Standing, move arms through extended arm action, with high elbow recovery.				
7. In prone position, move arms alternately with overwater recovery (high elbow), push underwater to hip.				
8. Swim through water 5 feet +. - alternate arm action high elbow overwater recovery - flutter kick - head in water				

	Performs with physical assistance	Performs with visual assistance	Performs with verbal assistance	Performs independently
BACK PROPULSION				
Kicking				
1. Lie on back, supported under head and back. Kick with alternating leg action.				
2. On back, move legs alternately up and down - from whole leg, minimal knee flexion.				
3. On back, move a distance of 6 feet.				
Arm Action				
1. Balance on instructor's knee, lean back. Move arms through a finning action - bend elbows, bring them simultaneously up beside body until hands at shoulders. Open hands, extend arms, and push water towards feet.				
2. On back, move arms through finning action in the water.				
3. On back, repeat arm action as above, add kick.				
4. On back, finning action with arms, kick with legs, move through water 5 feet +.				
Overwater recovery				
5. Balance on instructor's knee, lean head back. Move arms alternately through an overwater, straight arm recovery with bent elbow pushing action towards feet in propulsive phase.				
6. On back, in streamlined position. Lift arms alternately. Place in water extended above head, gradually bend elbow, push water towards feet.				
7. On back, in streamlined position. Arms move alternately with overwater recovery, kick with flutter kick action. Move through water 6 feet +.				

WATER ENTRIES	Performs with physical assistance	Performs with visual assistance	Performs with verbal assistance	Performs independently
Sit In				
1. Sit on edge of pool, extend arms to instructor.				
2. Sit on edge of pool, rock body forward.				
3. Sit on edge of pool, rock body forward, fall into water.				
Jump In				
1. Stand on deck over chest deep water, knees bent, step into water (1 foot to other foot entry).				
2. Stand more erect, jump (2 feet to 1 foot) into water.				
3. Stand in ready position, knees bent, jump (2 feet to 2 feet) into water.				
Front Dive				
1. Sit on pool edge, arms extended, ears between arms, head tucked, rotate forward into water.				
2. Crouch on pool deck, toes at pool edge, extend arms in same manner as above. Rotate body forward onto toes, fall into water.				
3. As above, then give push off from edge, enter water further away from edge.				
4. Squat or stand with flexed knees, lean forward, extend arms, tuck head. Rotate forward onto toes, into water head first.				
5. Take position as above, push off from edge, incorporate more spring into lead up to dive.				
6. Balance on toes at pool edge. Flex knees, tuck chin and extend arms. Rotate body forward onto toes, into pool head first.				
7. Position as above, flex knees. Push off from pool edge - spring into dive. Rotate forward, dive in head first.				

DAILY RECORD FORM

Name _____

Month _____ Year _____

Date	Skill _____			Comments
	Task	Response Level	Time/Number	

Graphing Code

Probe

■ Most typical daily performance level--Instructor 1

▲ Most typical daily performance level--Instructor 2

Performance in new setting with 1st instructor

Performance in new setting with 2nd instructor

* Final generalization testing--new setting, 3rd instructor

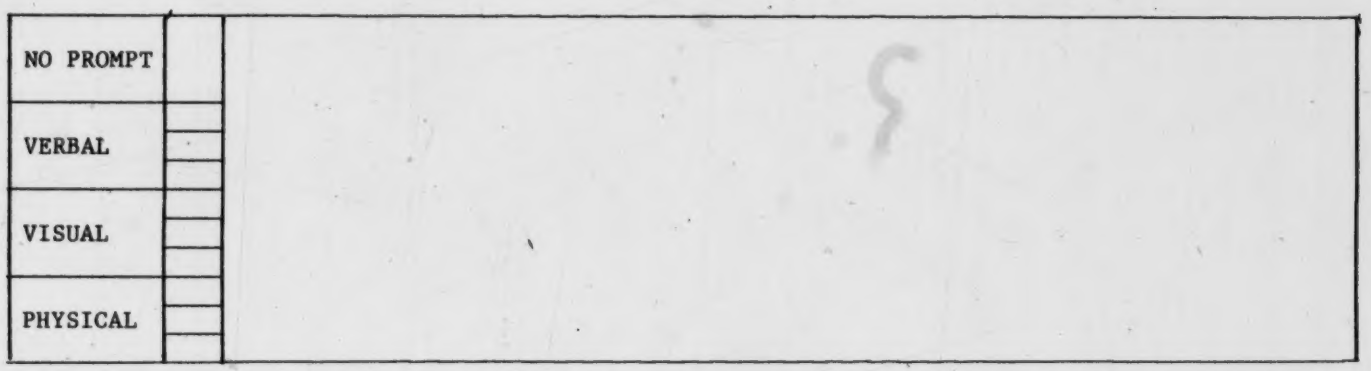
• • • Skill placed on maintenance

STUDENT _____

TARGET SKILL _____

TASK ___

TASK ___



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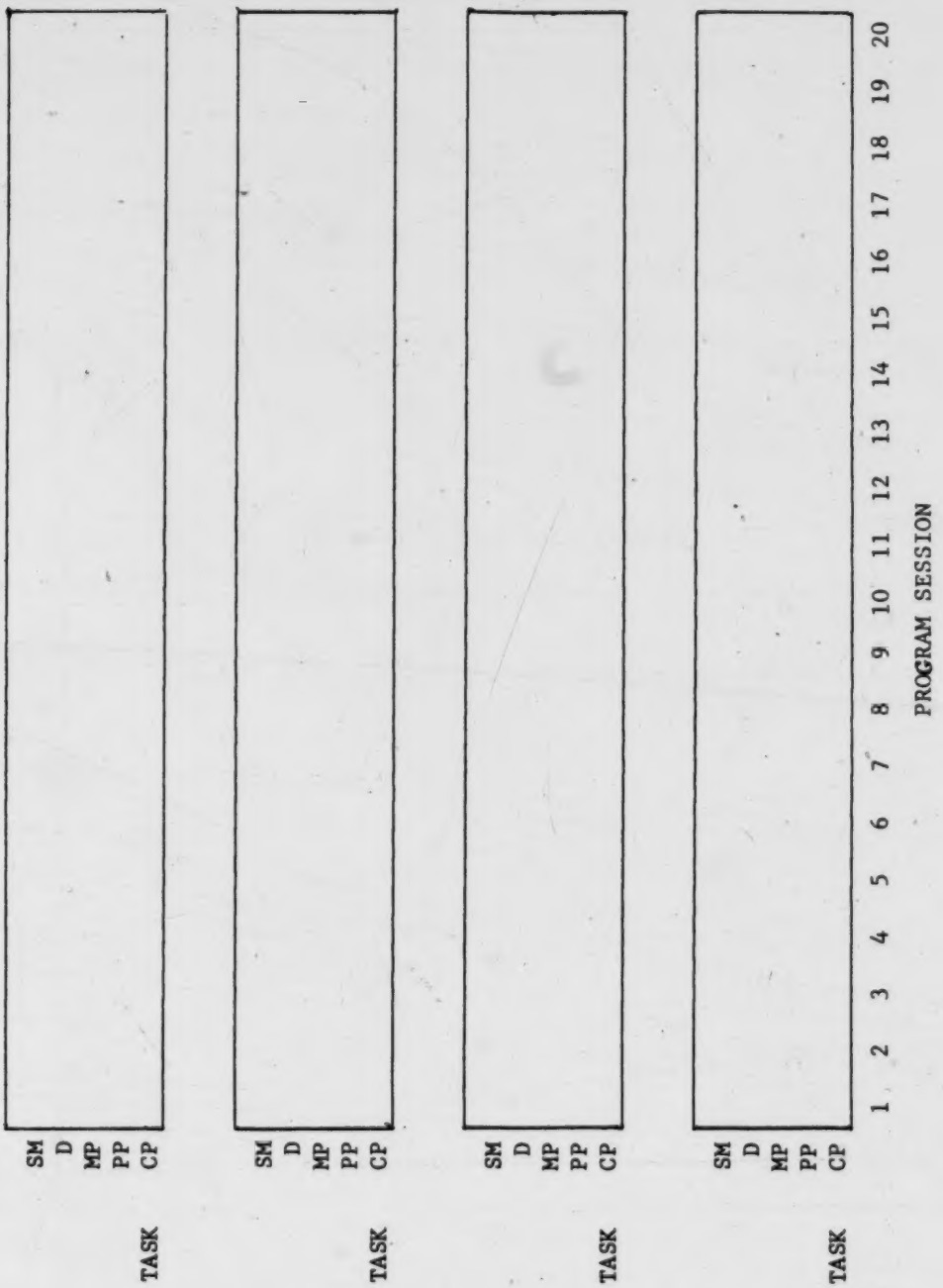
DAILY GRAPH

PROGRESS GRAPH



SOCIAL SKILL COMPETENCIES

Specific Objectives

Name _____

Instructor _____

N	Never
R	Rarely
O	Occasionally
F	Frequently
A	Always

Behavior Skills

1. The student behaves in and around the swimming pool in a manner that permits him to function optimally in a socially acceptable manner.

   (a) i Enters pool area willingly
   ii Enters swimming pool willingly

   (b) Engages in behaviors hurtful to self

   (c) Engages in behavior hurtful to others—including hitting, throwing, kicking, scratching, etc.

   (d) Engages in behaviors that distract others

   (e) Engages in self-stimulatory behavior

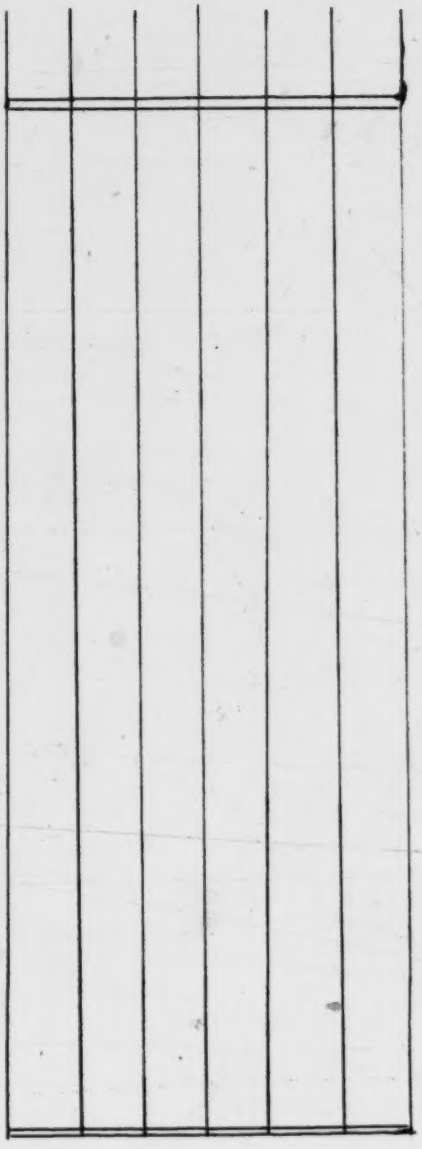
   (f) With reminders, places and stores own belongings (i.e., swimsuit, towel and goggles) in appropriate places

   (g) Independently places and stores own belongings in appropriate places

   (h) Helps to clean up after play activities

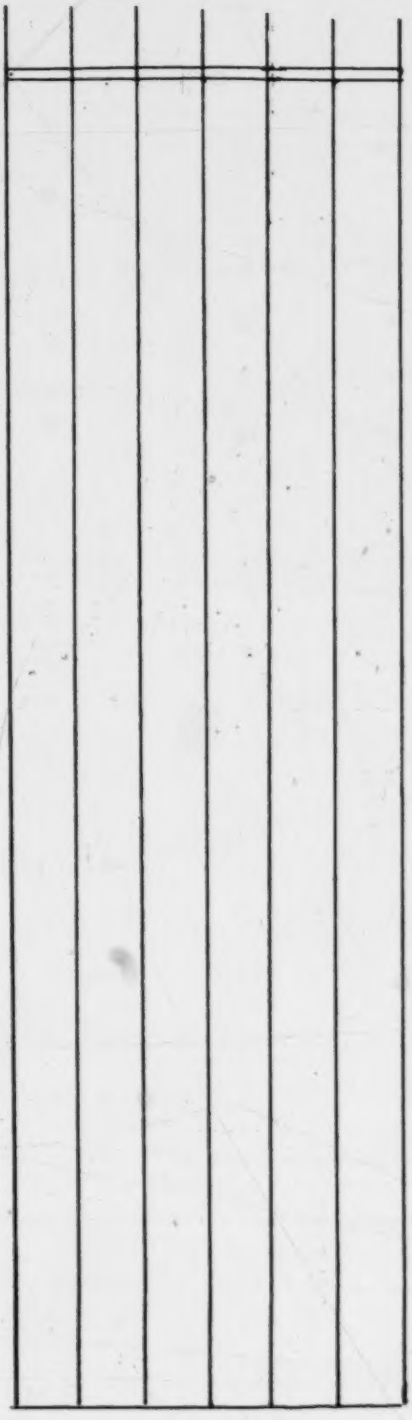
   (i) With supervision, cleans up accidents caused by self

   (j) Initiates cleaning up accidents caused by self



Comments:

2. The student behaves in learning situations in a manner that permits him to function optimally.



A. Individual Activities

(a) Engages in teacher-student interactions willingly

(b) Responds when spoken to (verbally or nonverbally)

(c) Looks at instructor when spoken to

(d) Listens to simple, specific instructions

(e) Practices skills once given directions by instructor

(f) Attends to task as directed by instructor during teacher-student interactions for ≤ 3 minutes

(g) Attends to tasks and practices as specified by instructor during teacher-student interactions for 3 minutes +

(h) Practices skills being acquired in free time with intermittent supervision

(i) Practices skills being acquired in free time with occasional reminders.

(j) Practices independently on skills being acquired

(k) Follows multiple instructions

(l) Follows delayed instructions

(m) Asks instructor for assistance when needed.

B. Group Activities

(a) Participates in group activities voluntarily

(b) Attends to specified tasks during short group lessons

(c) Participates in simple structured group activities with continuous assistance

(d) Participates with occasional assistance in group activities (games, warm ups, lessons)

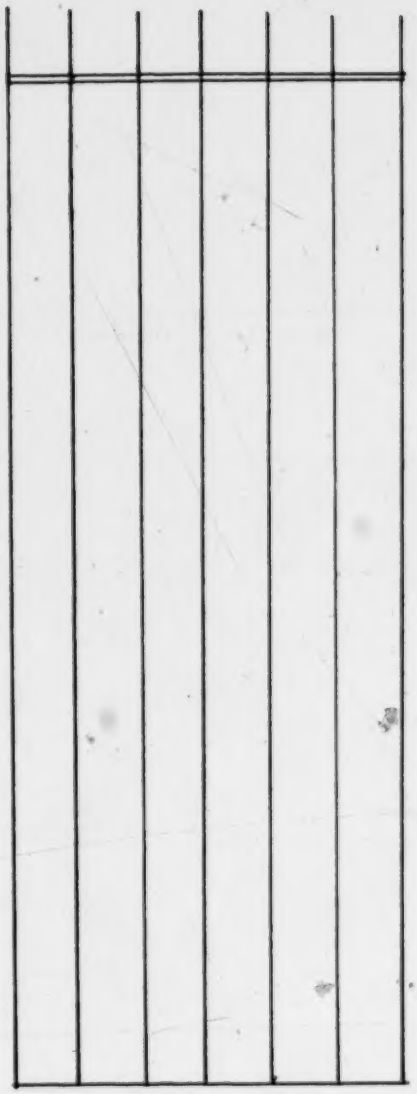
(e) Participates independently in group activities

(f) Attends to new and varied tasks in group activities

Comments:

Social Skills

1. The student responds to other students' positive interactions in a cooperative, social manner, and interacts with other students voluntarily for the purpose of social interaction in game playing.



A. Structured Activities

(a) Uses instructor's name

(b) Disturbs instructor when she is working with another student

(c) Accepts the presence of other children in structured group activities

(d) Cooperates with other children in structured group activities

(e) Verbalizes pleasantly; does not call other students or outsiders impolite names

(f) Verbalizes inappropriate comments

(g) With a reminder waits when necessary for a turn or for use of equipment

(h) Independently waits when necessary for a turn or for use of equipment

Comments:

B. Recreational (free time) Activities

(a) Engages in solitary play and activities in free time

(b) Uses a variety of toys to play with during free time

(c) Plays with others when prompted to do so

(d) Calls other students by their names

(e) Plays with others voluntarily in free time

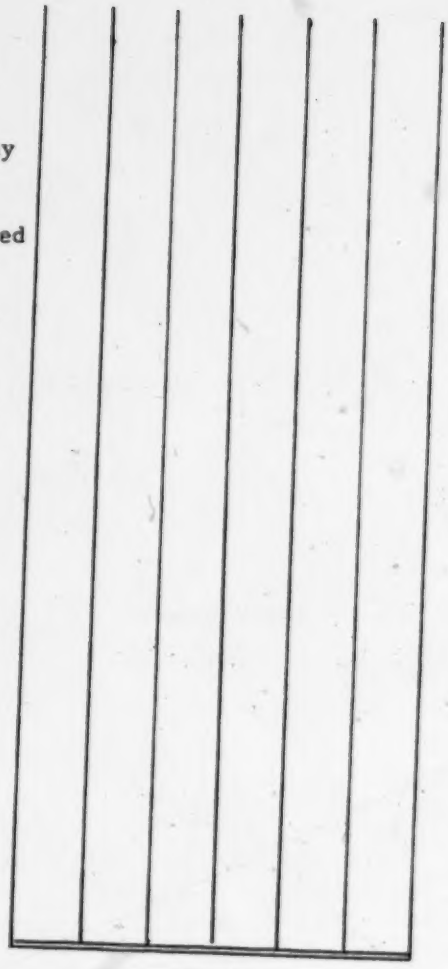
(f) Verbalizes pleasantly; does not call other students or outsiders impolite names

(g) Verbalizes inappropriate comments

(h) Cooperates with others in free time activities

(i) Waits when necessary for a turn or for use of equipment

(j) Engages in a variety of games/ activities during free time



Comments:

Self Help Skills

1. The student will independently find his way through the facility to the swimming pool, and back to the entrance/waiting area from the pool.

   (a) Finds appropriate changing room from entrance of facility with occasional reminders

   (b) Finds appropriate changing room from entrance of facility independently

   (c) From locker, finds way to swimming pool with occasional reminders

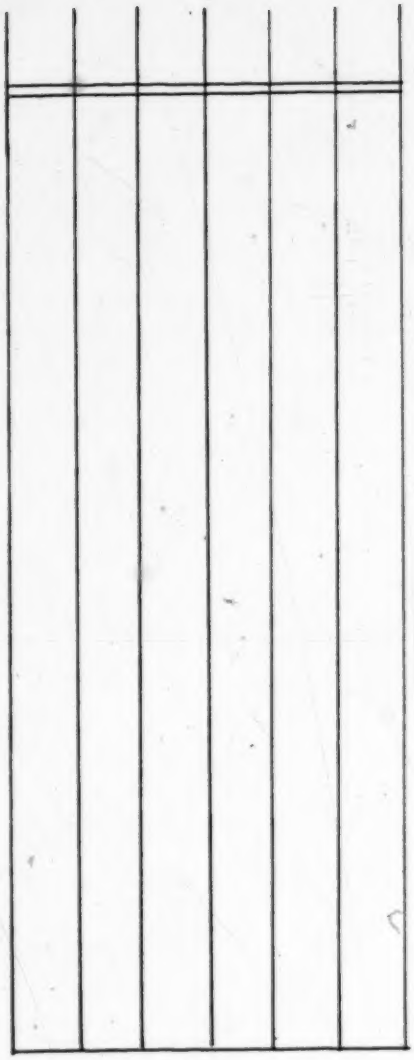
   (d) From locker, finds way to swimming pool independently

   (e) Finds and uses washrooms with assistance

   (f) Finds and uses washrooms independently

   (g) Sits quietly with occasional reminders after swimming lesson until met by instructor/ family

   (h) Sits quietly independently after swim lesson until met by instructor/family



Comments:

2. The student will independently bring appropriate swim wear and accessories, and function independently in changing self before and after the activity.

   (a) Changes in and out of swim wear with assistance

   (b) Changes in and out of swim wear with periodic reminders

   (c) Changes in and out of swim wear independently

   (d) Washes and dries hair and body with assistance after swimming

   (e) Washes and dries hair and body independently after swimming

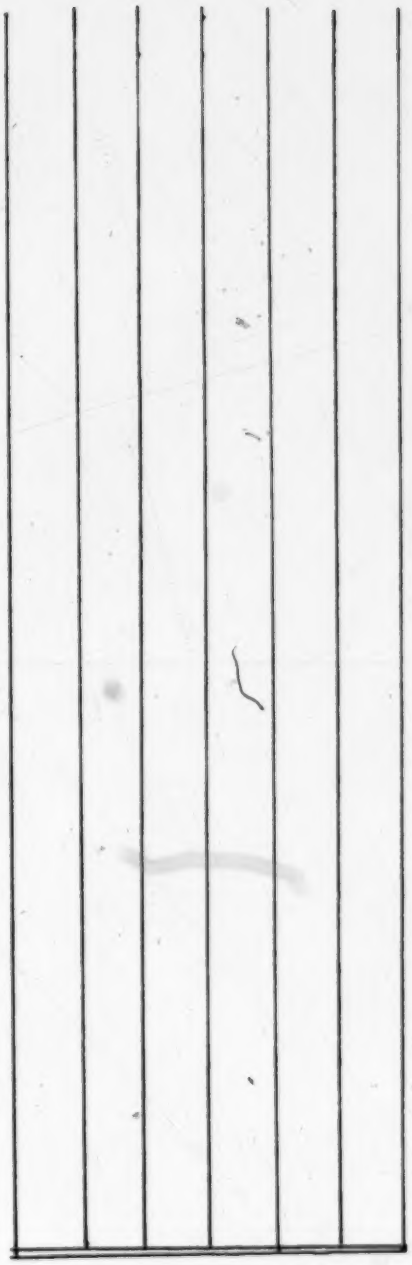
   (f) With assistance, leaves clothing neatly on bench or in locker prior to swim, and gathers it after in preparation for departure

   (g) Leaves clothing neatly on the bench or in locker prior to swim

   (h) Gathers together clothing and accessories independently after swimming to take home

   (i) Gathers together swim attire independently at home/school before coming swimming

   (j) Hangs up wet suit and towel after activity



Comments:

Safety Skills

1. The student engages in leisure activities in a safe manner--follows safety rules and precautions in and around setting

   A. Changing Room to Pool

   (a) Walks in control in changing room

   (b) Walks into shower area, and adjusts, with assistance, the water temperature appropriate for rinsing, before and after the activity

   (c) Walks into shower area and independently adjusts the water temperature appropriate for rinsing, before and after the activity

   B. Around the Pool

   (a) Walks in control on pool deck

   (b) Pushes or engages in rowdy activities on pool deck

   (c) Waits, with reminders, to enter pool until given permission to do so

   (d) Waits until given permission to enter pool

   C. In the Pool

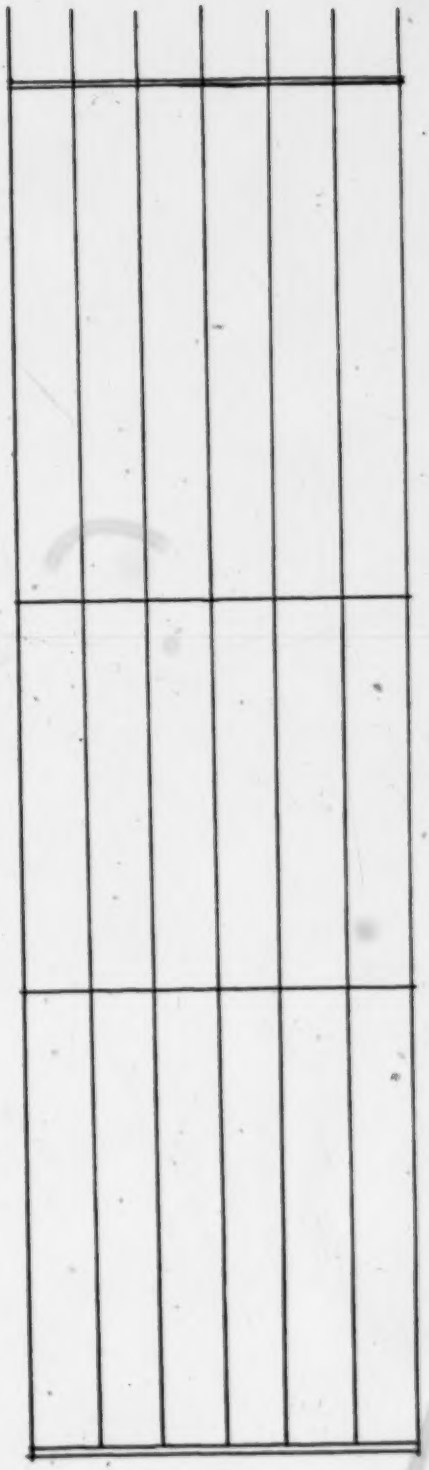
   (a) Enters pool from shallow end

   (b) Goes to washroom before entering pool and leaves pool when necessary

   (c) Splashes other children

   (d) Answers correctly to simple questions about water safety

   (e) Tries to swim in water beyond capabilities



Comments:

A PROCESS TOWARDS INTEGRATION INTO COMMUNITY LEARN TO SWIM PROGRAMS

MINIMAL COMPETENCIES FOR COMPLETION OF EACH LEVEL

Phase I - Skill Acquisition and Upgrading

Behavior Skills

1. The student behaves in and around the swimming pool in a manner that permits him to function optimally in a socially acceptable manner.

   (a) ii Enters swimming pool willingly

2. The student behaves in learning situations in a manner that permits him to function optimally.

   A. Individual Activities

   (d) Listens to simple, specific instructions

   B. Group Activities

   (c) Participates in simple structured group activities with continuous assistance

Social Skills

1. The student responds to other students' positive interactions in a cooperative, social manner, and interacts with other students voluntarily for the purpose of social interaction in game playing.

   A. Structured Activities

   (b) Does not disturb instructor when she is working with another student

   B. Recreational (Free Time) Activities

   (a) Engages in solitary play and activities in free time

Self Help Skills

1. The student will independently find his way through the facility to the swimming pool, and back to the entrance/ waiting area from the pool.

   (a) Finds appropriate changing room from entrance of facility with occasional reminders

2. The student will independently bring appropriate swim wear and accessories, and function independently in changing self before and after the activity.

   (a) Changes in and out of swim wear with assistance

Safety Skills

1. The student engages in leisure activities in a safe manner-- follows safety rules and precautions in and around the setting.

   A. Changing Room to Pool

   (a) Walks in control in changing room

   B. Around the Pool

   (a) Walks in control on pool deck

   C. In the Pool

   (a) Enters pool from shallow end

Swimming Skills

Can perform the following with verbal assistance:

   A. Water Adjustment

   4. Walk, run and skip across pool

   B. Face Submersion and Breath Control

   4. Submerge whole head and recover

Phase II - Skill Upgrading and Generalization Training

i) to other instructors

Behavior Skills

1. The student behaves in and around the swimming pool in a manner that permits him to function optimally in a socially acceptable manner.

   (c) Does not engage in behavior hurtful to others--including hitting, throwing, kicking, scratching, etc.

2. The student behaves in learning situations in a manner that permits him to function optimally.

   A. Individual Activities

   (e) Practices skills once given directions by instructor

   B. Group Activities

   (d) Participates with occasional assistance in group activities (games, warm ups, lessons)

Social Skills

1. The student responds to other students' positive interactions in a cooperative, social manner, and interacts with other students voluntarily for the purpose of social interaction in game playing.

   A. Structured Activities

   (c) Accepts the presence of other children in structured group activities

   B. Recreational (Free Time) Activities

   (a) Engages in solitary play and activities in free time

Self Help Skills

1. The student will independently find his way through the facility to the swimming pool, and back to the entrance/ waiting area from the pool.

   (e) Finds and uses washrooms with assistance

2. The student will independently bring appropriate swim wear and accessories, and function independently in changing self before and after the activity.

   (b) Changes in and out of swim wear with periodic reminders

Safety Skills

1. The student engages in leisure activities in a safe manner— follows safety rules and precautions in and around the setting.

   A. Changing Room to Pool

   (b) Walks into shower area, and adjusts, with assistance, the water temperature appropriate for rinsing, before and after the activity.

   B. Around the Pool

   (b) Does not push or engage in rowdy activities on pool deck

   C. In the Pool

   (b) Goes to washroom before entering pool and leaves pool when necessary

Swimming Skills

Face Submersion

4. Submerge whole head, recover--performs independently

Breath Control

3. Submerge mouth, exhale once, recover--performs independently

Front Float or Back Float

Performs one of the above--independently

Water Entries

Sit In

3. Sit on edge of pool, rock body forward, fall into water

Phase II - Skill Upgrading and Generalization Training

ii) to other settings

Behavior Skills

1. The student behaves in and around the swimming pool in a manner that permits him to function optimally in a socially acceptable manner.

   (d) Does not engage in behavior that distracts others

2. The student behaves in learning situations in a manner that permits him to function optimally.

   A. Individual Activities

   (f) Attends to task as directed by instructor during teacher-student interactions for up to 3 minutes.

   B. Group Activities

   (d) Participates with occasional assistance in group activities (games, warm ups, lessons)

Social Skills

1. The student responds to other students' positive interactions in a cooperative, social manner, and interacts with other students voluntarily for the purpose of social interaction in game playing.

   A. Structured Activities

   (e) Verbalizes pleasantly; does not call other students or outsiders impolite names

   B. Recreational (Free Time) Activities

   (b) Uses a variety of toys to play with during free time

Self Help Skills

1. The student will independently find his way through the facility to the swimming pool, and back to the entrance/waiting area from the pool.

   (f) Finds and uses washrooms independently

2. The student will independently bring appropriate swim wear and accessories, and function independently in changing self before and after the activity.

   (c) Changes in and out of swim wear independently

Safety Skills

1. The student engages in leisure activities in a safe manner--follows safety rules and precautions in and around the setting.

   A. Changing Room to Pool

   (b) Walks into shower area and adjusts, with assistance, the water temperature appropriate for rinsing, before and after the activity.

   B. Around the Pool

   (b) Does not push or engage in rowdy activities on pool deck

   C. In the Pool

   (c) Does not splash other children

Swimming Skills

Face Submersion

4. Submerge whole head, recover--performs independently

Breath Control

6. Submerge mouth and nose, exhale and repeat--performs independently

Front Float or Back Float

Performs one of the above--independently

Water Entries

Jump In

1. Step into water (one foot to other foot entry)--performs independently

Phase III - Consciously Simulated Integrated Program--

With Known Peers

Behavior Skills

1. The student behaves in and around the swimming pool in a manner that permits him to function optimally in a socially acceptable manner.

   (f) With reminders, places and stores own belongings (i.e., swimsuit, towel and goggles) in appropriate places.

2. The student behaves in learning situations in a manner that permits him to function optimally.

   A. Individual Activities

   (h) In free time, with intermittent supervision, practices skills being acquired

   B. Group Activities

   (d) Participates with occasional assistance in group activities (games, warm ups, lessons).

Social Skills

1. The student responds to other students' positive interactions in a cooperative, social manner, and interacts with other students voluntarily for the purpose of social interaction in game playing.

   A. Structured Activities

   (g) With a reminder waits when necessary for a turn or for use of equipment

   B. Recreational (Free Time) Activities

   (c) Plays with others when prompted to do so

Self Help Skills

1. The student will independently find his way through the facility to the swimming pool, and back to the entrance/waiting area from the pool.

   (f) Finds and uses washrooms independently

2. The student will independently bring appropriate swim wear and accessories, and function independently in changing self before and after the activity.

   (d) Washes and dries hair and body with assistance after swimming

Safety Skills

1. The student engages in leisure activities in a safe manner--follows safety rules and precautions in and around the setting.

   A. Changing Room to Pool

   (b) Walks into shower area, and adjusts, with assistance, the water temperature appropriate for rinsing, before and after the activity.

   B. Around the Pool

   (c) Waits, with reminders, to enter pool until given permission to do so.

   C. In the Pool

   (c) Does not splash other children

Swim Skills

Face Submersion

4. Submerge whole head and recover--performs independently

Breath Control

7. Submerge whole head, exhale and recover--performs independently

Back Float or Front Float

Perform either independently

Water Entries

Jump In

2. Jump in - two feet to one foot--performs independently

Phase V - Integrated Instructional Program Participation--

With Continuous Support

Behavior Skills

1. The student behaves in and around the swimming pool in a manner that permits him to function optimally in a socially acceptable manner.

   (g) Independently places and stores own belongings in appropriate places

2. The student behaves in learning situations in a manner that permits him to function optimally.

   A. Individual Activities

   (i) In free time, with occasional reminders, practices skills being acquired

   B. Group Activities

   (e) Participates independently in group activities

Social Skills

1. The student responds to other students' positive interactions in a cooperative, social manner, and interacts with other students voluntarily for the purpose of social interaction in game playing.

   A. Structured Activities

   (g) With a reminder waits when necessary for a turn or for use of equipment

   B. Recreational (Free Time) Activities

   (h) Cooperates with others in free time activities

Self Help Skills

1. The student will independently find his way through the facility to the swimming pool, and back to the entrance/waiting area from the pool.

   (g) Sits quietly, with occasional reminders, after swimming lesson until met by instructor/family

2. The student will independently bring appropriate swim wear and accessories, and function independently in changing self before and after the activity.

   (f) With assistance, leaves clothing neatly on bench or in locker prior to swim, and gathers it after in preparation for departure.

Safety Skills

1. The student engages in leisure activities in a safe manner—follows safety rules and precautions in and around the setting.

   A. Changing Room to Pool

   (b) Walks into shower area and adjusts, with assistance, the water temperature appropriate for rinsing, before and after the activity

   B. Around the Pool

   (d) Waits until given permission to enter pool

   C. In the Pool

   (d) Does not try to swim in water beyond capabilities

Swim Skills

Breath Control

8. Submerge whole head, exhale and repeat--performs independently

Front Float or Back Float

Can perform a front or back float independently, and kick, and recover. Can perform other float with assistance

Water Entry

Can jump in independently

Phase VI - Integration Instruction Program With Minimal Support

Behavior Skills

1. The student behaves in and around the swimming pool in a manner that permits him to function optimally in a socially acceptable manner.

   (i) With supervision, cleans up accidents caused by self

2. The student behaves in learning situations in a manner that permits him to function optimally.

   A. Individual Activities

   (j) Practices independently on skills being acquired

   B. Group Activities

   (f) Attends to new and varied tasks in group activities

Social Skills

1. The student responds to other students' positive interactions in a cooperative, social manner, and interacts with other students voluntarily for the purpose of social interaction in game playing.

   A. Structured Activities

   (h) Independently waits when necessary for a turn or for use of equipment

   B. Recreational (Free Time) Activities

   (i) Waits when necessary for a turn or for use of equipment

Self Help Skills

1. The student will independently find his way through the facility to the swimming pool, and back to the entrance/waiting area from the pool.

   (h) Sits quietly independently after swim lesson until met by instructor/family

2. The student will independently bring appropriate swim wear and accessories, and function independently in changing self before and after the activity.

   (h) Gathers together clothing and accessories independently after swimming to take home

Safety Skills

1. The student engages in leisure activities in a safe manner--follows safety rules and precautions in and around the setting.

   A. Changing Room to Pool

   (c) Walks into shower area and independently adjusts the water temperature appropriate for rinsing, before and after the activity

   B. Around the Pool

   (d) Waits until given permission to enter pool

   C. In the Pool

   (e) Answers correctly to simple questions about water safety

Swim Skills

Breath Control

9. Lie on stomach, place face in water, exhale—performs independently

Front Float and Back Float

Be able to perform a front and back float independently, and recover. Kicks on either front or back

Water Entry

3. Can jump in 2 feet to 2 feet